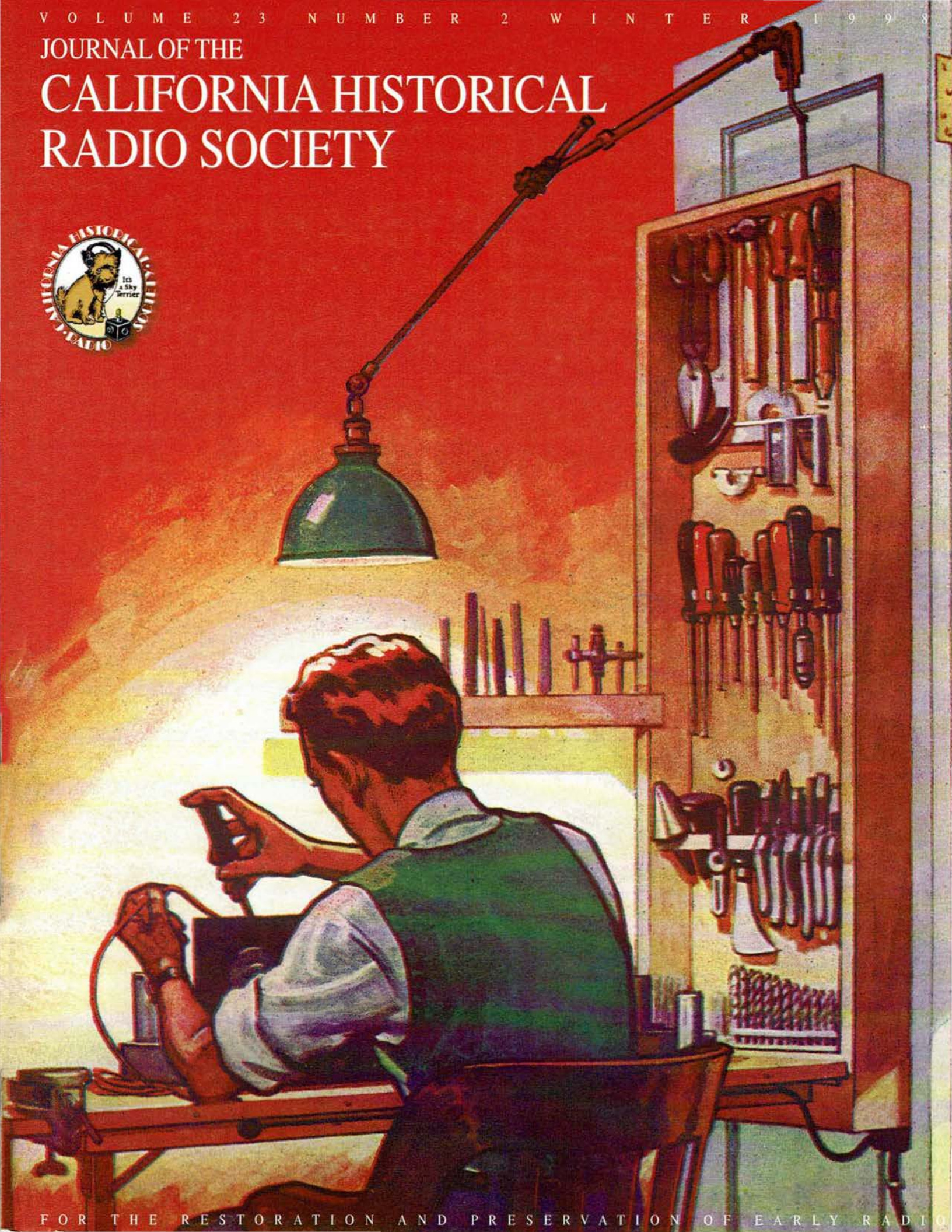


JOURNAL OF THE

CALIFORNIA HISTORICAL RADIO SOCIETY



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About CHRS

The California Historical Radio Society (CHRS) is a nonprofit corporation chartered in the State of California. CHRS was formed in 1974 to promote the restoration and preservation of early radio and broadcasting. Our goal is to provide the opportunity to exchange ideas and information on the history of radio, particularly in the West, with emphasis in collecting, literature, programs, and the restoration and display of early equipment.

The *Journal* of the Society is published and furnished free of charge to members. Yearly membership dues are \$20 (U.S. funds).

Submissions for the *Journal* are always welcome. Typed copy is preferred, submitted on a 3.5 inch IBM or Macintosh diskettes in ASCII or Microsoft Word format. Send all material to Stephen Sutley and include your name, address, and phone number. You write about radio and we'll print it.

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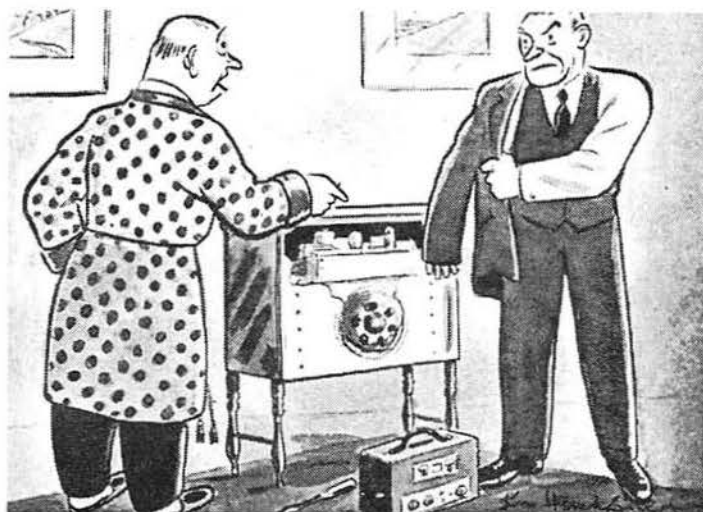
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CHRS on the Internet:

<http://www.antiqueradios.com/chrs/>

"Three bucks?
Why it only took you ten minutes!"



CHRS 1999 Schedule

Steve Kushman

Schedule as of 3/10/99.

Here is this year's schedule. Note that there are 2 events planned for June, and August. You must be a current member to sell at our events. Please, no activity before start time. Check the CHRS HOTLINE, 415-821-9800 for the best and latest information.

April 24th, Saturday, 9AM—Presidio of San Francisco, Building 1444, (the Army Coast Artillery Radio Station) near Kobbe Ave. and Washington, off Lincoln Blvd. Join us for Earth Day 1999 as we survey the site for artifacts, map the location, assist in native plant restoration, operate field military radio gear and generally have a good time. This is our third year. Let's have a good turnout!

May 1st, Saturday, 8AM—Los Altos Hills, Foothill College, Lot "D." Take the El Monte Rd. west exit off I-280. Right into campus. Right at tee. Sellers' fee applies. Meet/Auction.

June 5th, Saturday, 8AM—San Rafael. Erik's Downtown Drive-In. Corner of Second and Lindero. From Highway 101, take the Central San Rafael exit. Go west on 3rd. St. and left on Lindero. Look for the purple drive-in restaurant. Sellers' fee applies. Come early and have a great breakfast at Erik's. Thanks to Lee Allder.

June 19th, Saturday, 9AM—Merced. Cliff's Radio Warehouse. Corner of 13th and "X" Streets. From the North, take Hiway 99 South. exit at V St. turn right and right again onto 13th St. Make the first right past the AM/PM mini-market. Sellers' fee applies. It's a lot of fun to be in a warehouse full of radios. Thanks to Cliff Berthelsen.

July 3rd, Saturday, 8AM—San Francisco. St. Annes Church of the Sunset. Corner of Funston, (13th Ave.) and Irving. Funston is 6 blocks east of 19th Ave. (Hiway 1). Sellers' fee applies. Thanks to John Wentzel.

August 7th, Saturday, 8AM—Los Altos Hills, Foothill College. Lot "D." Take the El Monte Rd. west exit off I280. Right into campus. Right at tee. Sellers' fee applies. Meet /Auction.

August 28th, Saturday, Time TBA San Francisco—Commemoration of the first wireless transmission from the lightship San Francisco to the Cliff House. In conjunction with The National Park Service. Details to follow.

September 4th, Saturday, 9AM—Fairfield. Western Railway Museum. St. Rt. 12. Meet and Picnic. No sellers' fee. Everyone pays reduced park admission. Details to follow. Thanks to Paul Bourbin.

October 2nd, Saturday, 9AM—Pismo Beach - Oceano Airfield. Joint meet with SCARS. Campgrounds available. Working on reduced hotel rates. See www.aircamp.com (events) for map and details. Our meet will be live on the Web! Thanks to Dan Steele.

November 6th, 8AM—Los Altos Hills, Foothill College, Lot "D." Take the El Monte Rd. west exit off I280. Right into campus. Right at tee. Sellers' fee applies. Meet /Auction.

December—Nothing yet. How about a Holiday party and mini-swap? Who will organize it? Please let us know.

Sacramento Chapter—Meets the 3rd Tuesday of every month, 7pm at the SMUD building, corner of Elkhorn and Don Julio in Sacramento. All members are invited to attend.

HAPPY COLLECTING!

Steve

In Memory of William L. Howell (1930- June 20, 1998)

William Howell founded the Sacramento Historical Radio Society in 1975 and served as president numerous times over the years. He was instrumental in organizing the Sunrise Mall's first radio exhibit and helped to set up the WWII exhibit in the Towe Museum several years ago. Radio history was his avocation matched by his renown as a professional car restoration expert, particularly with Model Ts. He was a member of the Horseless Carriage Club, the Sacramento Valley Model T Ford Club, and the Association of California Car Clubs. CHRS Sacramento Chapter president, Don Steger remembers Mr. Howell with the highest regard as a local historian, radio preservationist, and as a longtime friend. CHRS extends our humble admiration for his energy and willingness to share his love of radio with the rest of us.

Editorial pleasure principle Stephen Sutley

Everyone is invited to use the journal as a forum for ideas on vintage electronics in general, tech talk, sharing tips/pointers, historical accounts, local history, biographies, preservation and restoration philosophies, reviews of books/radio shows/museums, suggestions for events, competitions, seminars, and any advice about organizing a regular get together.

The last meet at the Western Railway Museum at Rio Vista was fun. Thanks to Paul for sponsoring us and Steve and Janice for feeding all of us who stayed.

Future journal inclusions: Collector's spotlight, member interviews, tech talk Q & A (submissions please), tube amplifiers, early television, transistor radios, any related vintage electronics, paper, and photographs.

Television—someone sent in an article on kit TVs that the cat got, please send us another.

We always need articles/materials on your favorite topics or area of expertise. I've talked to a few CHRS members who are willing to share their collections, recollections, and source material but would prefer not to write an article. Please let me know if anyone is interested in helping out in any way.

CHRS—club without a home

CHRS needs a permanent site to build a collection/museum and archives specifically on radio history to be held in trust for future generations. Links to other clubs/foundations are essential, but autonomy and focus will be the only way to guide our future as an organization. CHRS is missing a crucial opportunity to receive formal donations and grants to preserve and share local radio history. Huge amounts of information are being lost forever and important local collections are being dispersed. There is an incredible amount of talent and experience in CHRS that could be used to develop, operate, and maintain a permanent site. Perhaps we could find a low rent location in the Bay Area as a start. The basic strategy is simple:

- 1) permanent site
- 2) financial statements
- 3) grant proposals and requests for donations
- 4) create a living museum and archive.

We need to find a home and be willing to pay the rent. Once a permanent site is found, everything else will snowball. When dream sites like the Presidio of San Francisco materialize, CHRS will be that much ahead.

CHRS News & Information ... from the President

Steve Kushman 3/20/99

What's going on here?—This is the Winter 1998 Edition of the Journal. A little late, but well worth waiting for. We apologize for the delay. If the mailing label on this Journal reads, "Membership expires Dec. '98," this is the last Journal you will receive. If you want to continue with us, please send back the form on page 28 with \$20, as soon as possible, to renew your membership in America's Premier Radio Club for 1999. Remember, you must be a current member to sell at our events. Your 1999 Membership cards will be in the Spring Journal.

Airport Exhibit—The long awaited exhibit, called "On the Air," has finally opened. It features many items provided by CHRS members and can be found in the North Terminal Gallery of San Francisco International Airport. This area is located between the moving sidewalks, on the way to the United Airlines' gates. The exhibit runs through July. Be sure to check it out. Also see Stephen Sutley's article in this issue.

Wee'rre Baaaack!—Our negotiations to secure the Club a covered location in San Bruno proved unsuccessful. Around the same time we were called by **Foothill College**, who invited us back without raising the fee. So on **May 1st, August 7th and November 6th**, we will be back in Lot 'D.' We would still like to have a permanent site that is protected from the weather. Any ideas? Do the research and let us know.

Journal—Our new editor, Stephen Sutley, has been working very hard contacting members on an individual basis to acquire new material for the Journal. And his hard work has paid off. This issue reflects some of these new articles. The standards of our Journal remain high due to the contributions of our members. Thank-You and keep the articles coming. Please let us know how you like this issue and give Stephen any positive or negative feedback. Thanks also to Alan Voorhees for doing a fine job on the layout and cover graphics.

Want Ads—The ads in the CHRS Classified are the most current we have. They consist of any ads from last year that were requested to be held over and ads submitted with renewals. We will run your ads until you ask us to cancel them.

CHRS Library—Many thanks to George Patterson for his generous donation of a set of

D.H. Moore Sketchbooks to the Club. This set is an invaluable addition to our Library. Larry Clark, our technical advisor and librarian is looking for more of the Specialized Series of Sams. He also would like to have the technical articles from old issues of *ARC* and the *AWA Old Timers Bulletin*. Keep your eyes open for them. Remember, Larry offers technical advice or reprints from Riders, Sams or anything in the library to our members. Call Larry for advice at **707-745-9132**.

For reprints send \$1 and a S.A.S.E. to :

Larry Clark
438 York Dr.
Benicia, CA 94510

Presidio Project—And other historical stuff. See Bart Lee's article for progress on the Presidio Project and about CHRS's involvement with the Maritime Museum and its exhibit on maritime radio. Bart also chronicles his travels back East to the AWA convention and to some interesting museums.

Earth Day—Will be celebrated on **April 24th** by CHRS, the Perham Foundation, and the Military Radio Collectors at Building 1444 on the Presidio (near Washington and Kobbe Ave., off of Lincoln Blvd). You are invited to this beautifully scenic part of San Francisco to have big fun. For the third year we will be assisting in native plant restoration, clearing overgrowth, surveying the area for artifacts, mapping the location and operating field military radio gear. Bring the whole family, a picnic lunch and enjoy this oasis in the heart of the City. Your help and participation in this Earth Day project shows our enthusiasm for the restoration of Building 1444 and the other radio related sites on this historic Post.

Equipment Contest—At the February 6th meet in Oakland, CHRS held its first equipment contest in several years. The subject was "Variations on a Theme" and members were invited to enter two or more radios that have something in common. For example, multiple sets in different colors or cabinet styles or different brand names, or similar sets from different makers. A secure and dry display area was set up and meet attendees voted on their favorites. Awards were presented to the top three places. 1st place was awarded a 1-year membership. 1st, 2nd, and 3rd places received great graphic trophies. First place went to Stephen Sutley for

his pair of catalin Emerson Patriots. Second place went to Alan Voorhees for his trio of metal sets. Third place went to Scott Robinson for his European portables. The contest was successful due to the members who entered sets and due to the hard work of Alan Voorhees. Alan organized the event and did a great job on the graphic signage. Alan also secured the space for us that allowed everyone to keep dry on a rainy day. Who wants to organize the next contest?

Donations—CHRS wishes to thank those members who generously sent donations back with your renewals. These donations really help maintain the high standards of our Club. Look for a list of these special members in our Spring Journal.

Please let me know if you have any comments, questions or suggestions for the Club. Call me at **415-821-7671** or Email me at **kushseal@flash.net**. Best wishes for a successful year of collecting and restoring.

See you at our next event.
Steve

Just in...

Tube Collector Association

PO Box 1181 Medford, OR 97501
(707) 464-6470/philbert@pacbell.net

New group of collectors and historians dedicated radio/wireless vacuum tubes and related histories is now forming.

The first issue of *Tube Collector* has just been published with a list of objectives for this Association:

To aid interaction between collector-historians

To provide a forum for new discoveries in tube history

To conduct "tube" meetings in conjunction with national radio-collector events

The first bulletin contains an article on DeForest's audion, sources for various tube reference books, auction results, an RCA tube manufacturer's list, and a Schicklering tube article. The editor is the renowned author of *Tube Lore*, Ludwell Sibley.

President—Al Jones, Secretary-treasurer—Bob Deuel, Webmaster—Phillip Rheinschild

Dues are \$20 per year. Please contact the Association for membership information.

ed. — Looks like a terrific resource!
A review of Tube Lore by Eric Barbour is in the Winter 1997 VTV journal, issue 6.

The Crosley Fiver

Stan Lopes

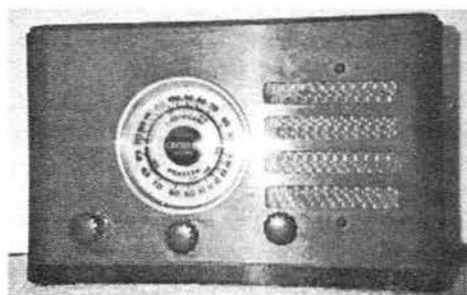


Fig. 1: Crosley "Fiver" Chassis 517 tabletop set



Fig. 2: Crosley "Fiver" Chassis 517 tombstone (short)



Fig. 3: Crosley "Fiver" Chassis 517 metal/plastic tabletop set

Stan writes: I've been collecting and restoring radios since 1975 and belong to several of the current radio collector's clubs. Starting with Radio Shop in high school and continuing into Navy Electronics schools, including teaching, I have over 55 years in the field of Electronics.

Stan offers free advice, but appreciates a self-addressed stamped envelope (LSASE). Stan adds that his name is pronounced as one syllable rhyming with ropes and he claims to have two children named Cantalopes and Envelopes).

This article was prompted by a lack of information! My Model 517 Crosley was acquired in 1985 from an old gentleman who also had some old radio books and a 1924 automobile. I bought a book and the Crosley. With very little servicing, I made it play. A brief rub down of the table set's original finish was enough to make it a proud possession--plus it had a gold-mirrored dial that was on convex glass.

This dial's appearance is quite different from the run-of-the-mill dials of most other sets (see figure 1). It covers the Broadcast band and Shortwave from 6 to 15 MHz, using five tubes and is a transformer-powered AC set. Riders indicates it was made for the 1937 model year. A fellow collector showed me his Model 517 Crosley with the same dial and chassis, but in a different cabinet: a tombstone as shown in figure 2. Both radio dials show station WLW, which was, of course, owned by Powel Crosley, and no other stations, just the frequencies. Eventually, I acquired one of the tombstones which took a place alongside of the other set.

Later, I began collecting metal cabinet radios made by Arvin, Sears, Wards, and others. As a result of an ad in the December 1993 ARC issue for information on the Model 517, a collector offered me a metal Crosley Fiver table set! The metal case, figure 3, has a plastic front and the same gold dial, except the Broadcast and Shortwave numbers are reversed with the Broadcast band across the bottom! But it is still the same chassis, labeled Model 517. All three sets use three identical knobs, but those on the metal set are black while the wooden set's knobs are dark brown. Naturally, I had to have the metal one to add to my collection.

I noticed that the factory label on the inside of the two wooden cabinets showed the same tube locations and listed eight cabinets while the metal set's label listed eleven! The eight cabinets listed are 6K, 6FF, 7H, 7M, 7MA, 7AC and 7AE. The bottoms of the wood cabinets were stamped with the cabinet designations: both 7B (poorly) and 7AE on the set in figure 1, despite the fact that the 7B was not on the label, and 7AC on the tombstone. No cabinet designation was found anywhere on the metal cabinet set, but the label listed an additional three: the 7B, 7BG and 7BF. Grinder's. *The Radio Collector's Directory*

lists a 517-A table set, a 517-B also a table set, and a 517-M console. The three are priced at a maximum of \$150. Confused? Read on...

The mystery was intriguing as I hadn't seen any other Crosleys with the same dial. Then the situation was compounded when a good friend, Jim Downer, since deceased, acquired a brown crackle-finished metal chairside with a plastic top by Crosley which has the same gold-mirrored dial, knobs, and a 517 chassis! It wasn't for sale, as he also had the wooden table sets pictured and was as intrigued and enamored as I was. Later, I determined it was a Model 567 Chairside.

An ad in the December 1993 issue of ARC requested that collectors write me if they had a Crosley Fiver with the gold dial and Model 517 chassis. The response was fair and a few collectors even sent me photos. One, G. Larsen, took the trouble of writing to mention that there were many Fivers, but not all with the same model number. He went through Riders schematics and listed these using the Model 517: a Fiver console, a Fiver Tele-Tune, and a Quick-Tune Fiver besides the ones I knew of already. He also listed others as follows: Deluxe Fiver Model 5V1 with a different tube line-up, a Fiver and Fiver Jr., also using other tubes, a Fiver Deluxe Model 5V2 with the same tubes as the 5V1, a Fiver "Roamio" Model A-157 for automobiles that used the same tubes, except for a 6X5 rectifier, an AC-DC Fiver Model 577, and a Super Vanity Fiver Model 558 series with the same tubes as the preceding AC-DC set. Not all of the Fivers have the same round gold dial as far as I can tell. Ed Krawczyk wrote that he had the metal table model shown in figure 3 in a cabinet double stamped 6K 6FF, and with the chassis stamped "Fiver."

I would be pleased to hear from any readers wishing to contribute more information on Fivers and photographs would be helpful too for a follow up article.

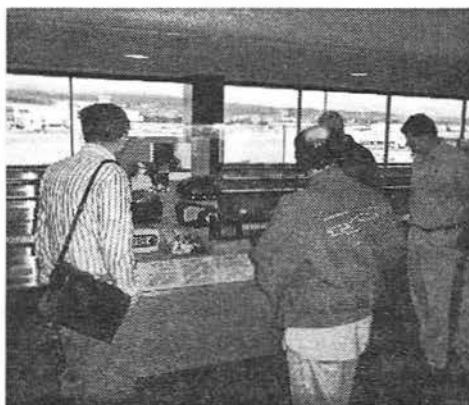
Stan Lopes can be reached at 1201-74 Monument Blvd., Concord, CA 94520-4402. (925) 825-6865. SPLOPES@AOL.COM

Stan found an internet site on Crosleys at <http://www.pcola.gulf.net/~oldradio/>. There is a listing of Crosley models, radio galleries, and related advertising.

On The Air

Broadcasting exhibit at San Francisco International Airport
February—May

On the Air broadcasting exhibit at the main gallery in the United connector.



SERENDIPITY

Chances are you've been stuck at the airport (SFO), wandered by a museum exhibit and stopped to have a closer look. The things on display drew you in: you probably read every line of text and even circled around the cases. Indeed, boredom has a way of increasing the appeal of things, but sometimes an instant and lasting connection is made with a place in time or some tool for living. The object takes on the identity of an age and—like all good American romances—we identify ourselves with our things.

The airport exhibits usually rumble through the rich landscape of industrial design and into the heart of popular culture and daily life. *On the Air* is the latest exhibit coming together in the main gallery and presents a glimpse of the tools and products of the radio broadcasting trade that span the beginnings of radio technology up to our own time. Broadcast programming and production tools such as scripts and sound effects form the superstructure of the exhibit—the entertainment side of the industry. First-rate design products are the filler: a cross section of radio shapes from all decades, microphones, advertising signs and posters, photographs, related products and media such as phonographs, hi-fis, and Vogue records. If we're lucky, the surroundings will fade into the background music, and we can fuel our own radio-rich dreams and get lost in one of our favorite worlds for a while.

INDUSTRIALIZING THE RADIO

We all wandered into the radio hobby and found a parallel history of modern America. Inventions and radio engineering prowess grew into everyday appliances that delivered the sounds of mainstream culture into our homes since the 1920s and continue to shape our lives. The modern age of American radio broadcasting and design in the 1930s and 1940s blended new technologies, faith in science, programming visionaries, and the rise of the industrial designer to package the hopes of the new world. Broadcasting sparked an unique form of entertainment paid for by advertising and created a demand for easy to use, low cost, and fashionable radio designs.

The airport museum's display and interpretation of broadcasting history skims the seemingly bottomless expanse of radio-related hardware and advertising, showing

highlights of the stylized forms and glamour that reflected glimmers of the American dream. There are plenty of design icons on display to satisfy hardened collectors and also a range of artifacts that fill out the production side of broadcasting. Most of us were already hooked on radios in 1992 and remember the *Old Time Radio* exhibit at SFO, showcasing Dan Healy's collection, as if it were just a few years ago; this exhibit generated a lot of interest among collectors and the general public. The museum's urge to do something completely different with radios in the *On the Air* exhibit puts the emphasis on innovations in modern plastics, including transistor radios, that were so crucial to the spread of a modern aesthetic and a distinct American design language. This time around, vintage plastics are regaled in all their flashiness as exuberant modern idioms glamorizing the machine and the message of optimism.



LOCATION

The airport exhibits are fairly light-hearted and informal, well matched to the site and museum objective of entertaining and informing the public at large. The exhibits use a fine arts sensibility to share the beauty and stature of industrial designs with a mainstream approach to reach the public. People of all nationalities blur past the exhibits dotting the terminals and look effortlessly at interpretive displays of industrial art, native art, and art with a big A. Most of the objects on display reveal a vibrant material culture that connected with the lives and mindsets of typical people.

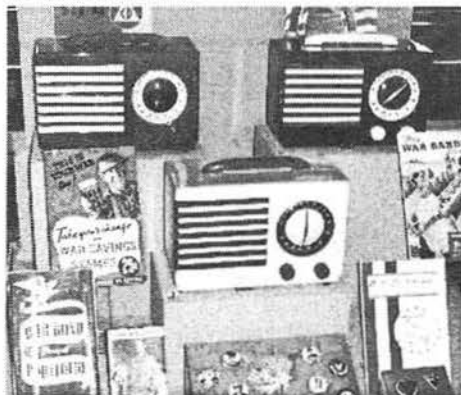
The SFO museum staff has put together wildly varied exhibits that may have changed more lives than they can ever know. I've seen displays of chairs, cocktail shakers, board games, Lucite purses, Bakelite jewelry, surf boards, teapots, Puebloan pottery, advertising

Radio Round-Up

Steven Cabella

tins, bicycles, etc., but missed the display of Japanese tin toy robots. A local newspaper estimates that ten thousand people a day pass by the main gallery in the United connector: some whiz by on the moving rubber sidewalks on both sides of the gallery and some walk right up the main aisle. Like it or not, all must pass-- and some are taken.

THE CONCEPT



The broadcasting exhibit has been a year in the making and the result of a team of museum specialists and volunteers. SFO curator Jim McDonald contacted Steve Kushman, CHRS president, with a proposal to trace the growth of recorded and broadcast media technologies. Jim had already recruited Don Cochrane, CHRS member, to show his phonographs and radio collection for this *Century of Sound* exhibit. A call went out to collectors who opened up their homes and selflessly gave their time to share their related hardware and advertising with the public: hundreds of objects were photographed and documented. The museum staff culled the phonographs and radios and laid out an exhibit spanning over a century from early cylinder phonographs to the latest Bang and Olufsen hi-fi. This seemed

like a lot of ground to cover, but the museum operates with a two-year backlog and second chances looked pretty remote.

The initial concept for the exhibit evolved over time and eventually focused on broadcasting history in general with radios and related artifacts in a support role. Radio programming and related production tools were borrowed for *On the Air*, emphasizing broadcasting's role in delivering culture, along with contemporary radio art pieces. Jim acted as the lifeline to CHRS during the many turns of this exhibit, and had the unenviable job of telling the collectors who had prepared and packed their contributions (in some cases delivered) that the scope of the display had changed. The exhibit promises to be a tribute to the collective ingenuity of a century of industrial design with insights into the impact of radio programming that helped form the backbone of the American consciousness.

S. Sutley

The participants: Paul Bourbin, Steve Cabella, Frank Camenisch, Jim Cirner, Don Cochrane, Mark Davis, Don and Jackie Day, John Eckland, Everett Farey, Jack Gray, Jeff Hollinger, Matthew Householder, Steve Kushman, Norman Leal, Bart Lee, Stan Lopes, Karl Manthei, Robert Regua, Wayne Ross, Don Shelman, Mike Simpson, Stephen Sutley, Robert and Reina Swart, Russ Turner, Brad Thomas, Alan Voorhees, John Wentzel, Ekkehart Willms, and Ken Zander.

The SFO museum graciously donated \$3,000 to CHRS in appreciation for the collectors who helped on this project. Reviews of the exhibit are encouraged.



The Philco Radio Company used to have a business practice in the 1930s called the "Philco Radio Round-Up." The company would send out announcements advertising a discount off the purchase of a new Philco radio for every old radio you brought in. They wanted the customer to round up all the radios he could find in his neighborhood and bring them into the Philco dealership. Days later, when the customer realized what he had done, he had to go back down to the store to buy a second new radio to replace the extra one that he used to have and now needed but was tricked into turning into the dealership for credit. The really sad news is that at the end of these round-ups, the dealership would have the local mayor come down and light a giant bonfire of the old radios. It is even more ironic that most pre-1930 radios were made mostly of metal.

Vintage Cable TV

In the early 1950s, Zenith Radio and Television came up with a way to use telephone lines to carry the broadcast signals of major big-city television station events to the homes of rural America. The prevailing thought was that the rural folk would be willing to pay for this service since it would cost them only a fraction of what it would cost to go see the events. Offered for a few years under the exciting name of *Phonevision*, later called *Phonyvision*, this service failed to entice enough dumb customers to pay some company for something called "cable television."

Steven Cabella is a Bay Area collector, design historian, and owner of the Modern i Gallery at 500 Red Hill Avenue in San Anselmo. These articles originally appeared in the Summer 1998 issue of ECHOES magazine.

Note: The Round-Up scheme is a tribute to the cunning marketing savvy of the Philco Radio Company described in this issue by John Paul Wolkonowicz.

Presidio and Maritime Radio

History and Related Displays and Museums

By Bart Lee, xWPE2DLT, 88 Kearny Street, ste 1310 San Francisco, CA 94108; (415) 956-5959

Correspondence is invited.

Under the guidance of the National Park Service's **Mary Lou Herlihy** and Curator **Richard Everett**, and amateur radio operators and restorers **Tom Horsfall** and **Dick Dillman**, the **Maritime Museum at Aquatic Park** in San Francisco is devoting a floor of display space to maritime radio history. They so far have a complete radio room from a Victory Ship, for which they are creating a new radio-room on the floor below the new main radio displays. They are seeking spark era information and gear, and all maritime-radio related materials, especially photographs and artifacts. This is a fully-funded museum operation looking to a permanent museum display on maritime radio. Please contact Ms. Herlihy if you would like to assist, 556-0532. **Tom Horsfall** deserves a great deal of credit for his fine work in historical radio operation and as a real spark-plug for so much enthusiasm on the part of so many others. Anyone with a vintage (or new) radio with a short wave band on it can hear the military guys talking on AM (ancient modulation) in the 80 meter band (around 3.880 Mhz) many weekend evenings.

The *USS Pompanito*, a World War II submarine, ties up at Pier 45 in San Francisco, not far from Fisherman's Wharf. Its radio room is near complete, including its big "battleship" receivers. They still need the modified aircraft IFF (Identification Friend or Foe) radar unit that the sub used to identify itself to Allied forces. They also need the cryptographic machine used on the sub. It was the so-called SIGABA unit (M-134C converter). A photo appears nearby. Please contact the sub (**Richard Pekelny**) if you can help with either



of these. The *SS Jeremiah O'Brien* ties up at Pier 26 in San Francisco, just south of the Bay Bridge next to **Red's Java House** on the Embarcadero. It is the only remaining

operational WWII Liberty Ship. It sailed to Normandy for the 50th anniversary of the Normandy landings. Its radio room is complete and well worth a visit (and visitors are welcome). The long wave transmitter is operational and in regular contact with KFS (the new Globe Wireless station with the 75 year history). It also uses a ham rig stowed in the Radio Officer's bunkroom. The *Jeremiah* goes out for cruises a couple of times a year. The radios operate, and the traffic on the Coast Guard channels (e.g., 18 or 156 MHz) can be quite interesting when the *Jeremiah* sets sail under the command of an old salt. Contact the *Jeremiah O'Brien* Foundation at Fort Mason for more information.

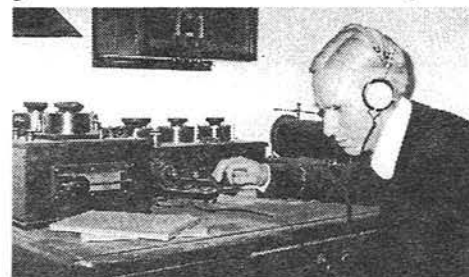


The Presidio of San Francisco will welcome one or more displays about radio history in the coming year, according to **Steve Haller**, Historian of the Presidio for the National Park Service. Steve has been very helpful to CHRS in its interest in the Coast Artillery Radio Station, building 1444, on Robb Hill. The **Military Collectors Radio Net** has now for a couple of years operated from the site on Earth Day in April and Armed Forces Day, and will again this Spring, on April 24. **Alex Seddio**, **Dick Dillman**, **Henry Engstrom**, **Paul Thekan**, and nearby operators such as **Bjorn Forsberg** and several other dedicated operator/historians such as **Tom Hersfall**, put the Coast Artillery radio circuits back in operation, however briefly. **Don Koijane** and the **Perham Foundation**, as well as CHRS and the Military collectors, are awaiting Requests for Qualifications from the Presidio Trust on radio-related buildings. Nobody knows when the Presidio Trust will act, but some action on at least one of the buildings is expected this year. The old **WVY** Army radio station transmitter building would be ideal for

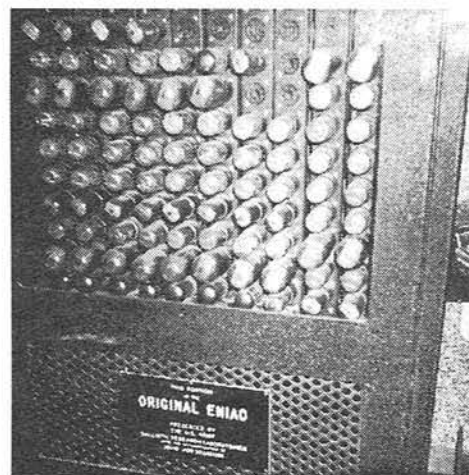
a museum site. Photos appear above.

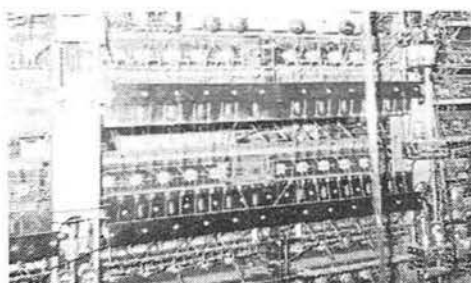
This year would be an ideal time to operate 10 meters amateur gear from the Presidio, because international propagation is getting so much better. The international aspects of our potential use are a good selling point. Anyone interested in so operating, please call me.

Anyone traveling to the Washington/Baltimore area has an opportunity to visit the **Baltimore Electronics Museum**, formerly known as the **Westinghouse Radar Museum**. It is very close to the Baltimore Airport, next to the airport Marriot Hotel, so transportation is easy. Its radar collection is unmatched, and its people very friendly and helpful. Outside can be seen the only surviving antenna array for the "Pearl Harbor Radar," the Army set that detected the incoming flights of Japanese aircraft on the morning of December 7, 1941. Its warning went ignored at Headquarters. CHRS friend **Don Helgeson** of Chicago (who publishes the newsletter *Radarhist*) spotted it in Alberta, Canada at a local university, abandoned after years of weather research. He got it to the Radar Museum.



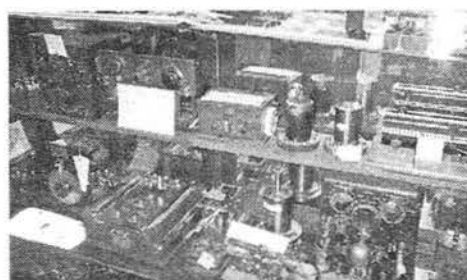
Needless to say, the **Smithsonian Institution** in Washington DC, merits a visit. The Information Age exhibit is a winner. I liked especially the replicated (albeit incomplete)





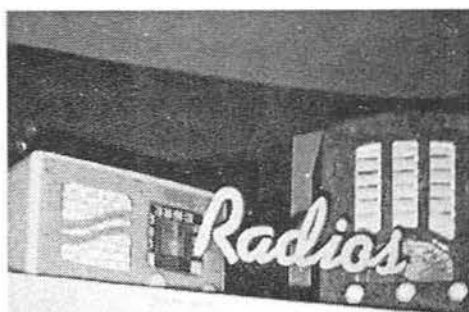
RMS Titanic wireless room, and the vacuum tube computers (part of ENIAC among them). Some photos appear nearby. The Archives welcomed me for several days of research on wireless on the West Coast. Nice people and very helpful. (They also have little colorful plastic radios on display. I wonder what that's all about?).

Curator Col. Ed Gable at the AWA Museum Annex



Any East Coast trip should include the Antique Wireless Association Museum in upstate Holcomb, New York, just east of Rochester. The annual AWA convention for 1999 will be held at the Rochester Marriot (nothing to do there but radios, believe me!) on September first through fourth, the days before Labor Day. Make reservations early. A visit during the convention can get you into the Museum Annex—photos nearby.

— 73 — Bart.



Ed. Note—Bart Lee has been crucial in developing and maintaining CHRS' ties to other radio related groups and has been the driving force behind the Presidio project and other potential museum sites. Bart's activities in preserving and documenting local radio history have been fairly amazing.

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Norman Braithwaite

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Imagine being the owner of a successful and growing foundry equipment business in the mid-1930s. You and your wife (yes, you are married for this feature) have just about everything you have wanted and pretty much do what you want to do. You own a large home, fine cars, an airplane (both you and your wife are small plane pilots), a speed boat, ocean front property on the west coast with a modest waterfall and many other fine things. You enjoy music and frequently attend concerts and operas. You enjoy running your foundry machinery business and, for that matter, tinkering with anything mechanical or electrical.

When not entertaining the likes of Douglas Fairbanks Senior and Erle Stanley Gardner, you sit by your obsolete radio wishing you could receive the now popular European broadcasts on short wave. Your wife is a concert pianist for the Chicago Symphony Orchestra. Obviously, you want the best in a radio receiver and sound system. You are willing to pay about as much for your music system as you did for your house and you want the best. Furthermore, it has to look good because it is going in the house. Not an easy order to fill.

Fortunately, you have an acquaintance in town who owns a company which has built and sold some receivers highly rated by the

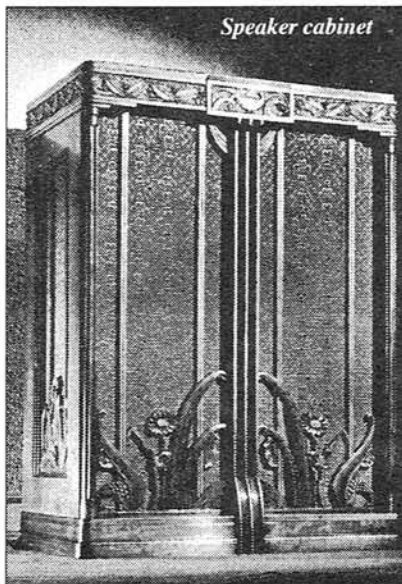
technical publications (to which, of course, you subscribe). You call your acquaintance to inquire how he may help. A couple of days later you receive a brochure describing the company's current popular high quality receiver of which you have read exceptional reviews along with a couple of company newsletters for customers. The brochure describes a 23-tube "Full Range High Fidelity" receiver with a chrome plated tuner chassis, a chrome-plated 35-watt "distortion free" power amplifier using the recently introduced 2A3 power tubes, a good quality 12-inch electro-dynamic pedestal speaker and two optional "tweeters." The tuner features continuously variable selectivity with an intermediate frequency bandwidth ranging from 2-kilocycles to 32-kilocycles, two stages of radio frequency amplification, voltage regulated oscillator, sensitivity control and signal strength meter. In fact, no other tuner offers such comprehensive features. The set is offered in a variety of fine cabinets and with a variety of options including several phonographs, a volume range expander and a couple of antenna kits. Certainly this is a nice receiver, but upon inspection of the newsletters, you find something of greater interest.

Described in one newsletter is a custom built 40-tube receiver with a deluxe amplifier and speaker section. The tuner of this custom receiver is essentially identical to the unparalleled tuner of the Full Range High Fidelity receiver described in the brochure. In the audio

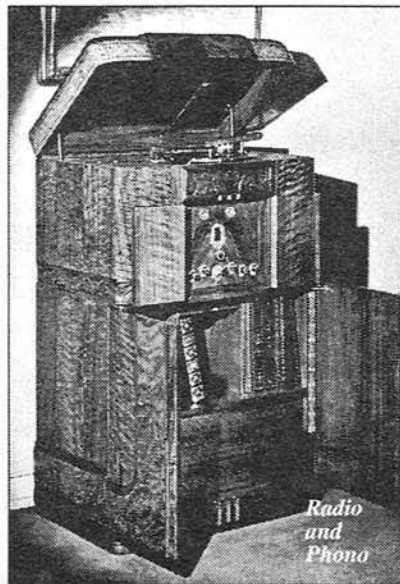


amplifiers of this custom receiver, the audio signal is split into low and high frequency ranges and each range is amplified separately. Audio signals below 125-cycles per second are amplified by a 50-watt all triode amplifier and fed to a giant 18-inch die cast electro-dynamic low frequency speaker. The audio signals above 125-cycles per second are amplified by a separate 50-watt all triode amplifier and further divided before feeding the mid and high frequency speakers. Audio signals between 125-cycles per second and 3500-cycles per second are reproduced by two 12-inch "concert" speakers and signals above 3500-cycles per second are reproduced by two horn tweeters.

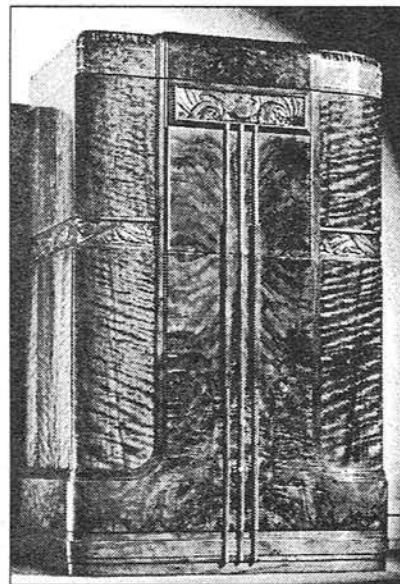
This radio incorporated nothing less than the sound system from a small movie theater! Furthermore, the custom receiver is housed in a



Speaker cabinet



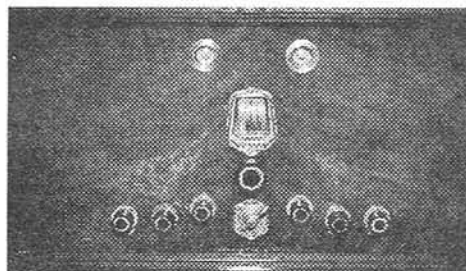
Radio and Phono



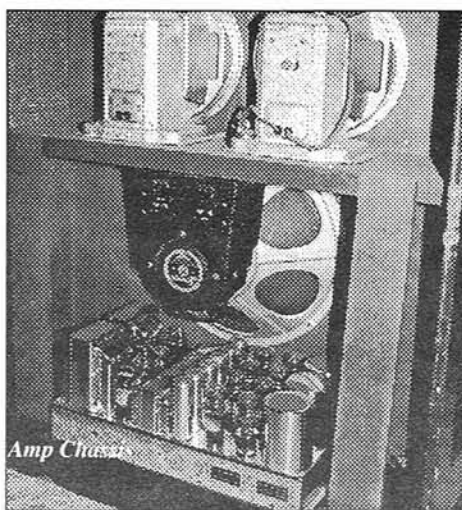
Probably the rarest and most desirable of all radios, the 1935 E. H. Scott Quaranta, (48 tubes with a 100 watt all triode amplifier).

very elegant pair of console cabinets. The cabinet containing all of the chassis and the automatic record changer is of select walnut burl and striped walnut with hand carved trim including leaves and a pheasant. The awesome speaker console, in addition to similar woods and trim carving, includes massive carvings of plants and flowers near its base and on the sides. This would go well in any luxurious home.

As if this wasn't elaborate enough, the other newsletter describes a pair of 48-tube custom receivers built for customers on the West Coast. Especially attractive in this model is a 12-inch record lathe, dual ribbon studio microphone and associated electronics (hence the additional 8 tubes). Being able to record your DX reception, live broadcasts and your wife's piano



recitals would be just the thing to impress the guests. Better yet would be a 16-inch record lathe and one of the Capehart record changers which automatically flip the records so you



don't have to get up to change them!

Could you have such a set built? Yes, and that is just what a Mr. Beardsley of the Beardsley and Piper Foundry in Chicago commissioned. The setting for this feature is true, and the receiver which was purchased for \$3500.00 in 1936 was the most elaborate the E.H. Scott Radio Laboratories had ever produced.

Approximately 50 years after the set was built, the Beardsley receiver was located in the attic of the west coast house formerly belonging to the Beardsley family. This set, however, defied all descriptions published or released by the E.H. Scott Radio Laboratories.



Instead of two consoles, the Beardsley receiver was housed in three consoles. Unlike the sets featured in promotional literature, the consoles of the Beardsley receiver had carving of flowers and leaves on all consoles and carvings of two pheasants on both the receiver console and the phonograph console.

The phonograph console included a Garrard turntable as well as the Capehart automatic record changer. In addition to the tuner and "mid" amplifier (crossover and preamplification), the receiver console included a Presto 16-inch record lathe, an



Amperite dual ribbon studio microphone, recording electronics and a logging desk with limited storage. In contrast, the 48-tube custom receiver featured in Scott promotional literature included a Garrard automatic record changer (which does not flip the records) and a 12-inch Presto record lathe. Excepting a dynamic record scratch suppressor circuit most likely included in the Beardsley receiver, the receiver, amplifiers and recording circuits of the Beardsley receiver were the same as the other sets featured in the Scott promotional literature (later included in the Scott Philharmonics).

To date, the Beardsley receiver is the only known surviving example of a Scott Quaranta (40-tube) or Scott 48-Tube Custom Receiver (50-tube for the version with the record scratch suppressor). In its day, prior to the advent of frequency modulation, magnetic recording media, and television, this receiver was the ultimate entertainment center.

Norman Braithwaite (formerly of the North Valley Chapter of CHRS) writes for a variety of radio related publications. This article appeared in the Winter 1996 issue of Vacuum Tube Valley. Many thanks to Norm and Charlie Kittleson, editor/publisher of VTV. Norm's latest article on McMurdo Silver appears in the current issue of VTV.

A Book Review

A Vintage Book Review by Paul Joseph Bourbin

The Western Electric Loud Speaker and Horn Compendium (Vol. 2 in the Museum of Sound Series) by Barry Nadel. Published by The Historical Institute for the Study of Sound (H.I.S.S.), P. O. Box 29303, San Francisco, CA 94129, 1997, serially numbered, 58 pages, softbound.

Western Electric equipment is much sought after by collectors and dealers today for a number of reasons. Unlike most of the marques that interest collectors, Western Electric had little interest in selling material to the general public. Western Electric was interested in producing material for phone companies, theaters, sound studios and radio stations. Often they were one of only a few companies supplying such material. Since their business was of a commercial nature, rather than consumer, they followed their own track instead of following mainstream fashion.

Their goal was to produce high quality, reliable equipment for people whose living depended upon continuous, stable and rugged equipment with little down time. Relieved from having to follow the dictates of a fickle and non-technical public, Western Electric developed their own specifications, designs and lexicon that often were quite independent of others. Since the equipment was of a commercial nature, Western Electric was able to tightly control who could install and service their equipment.

There are far fewer theaters, studios, etc. than general consumers, so it followed that there was a dearth of information available and most of that was kept in house. Because of the above, a sort of legend has evolved around Western Electric equipment; some based on fact and some based on fiction. It is in attempting to bring truth out of the legend that Barry Nadel has published this book; the second in a series of books aimed at disseminating solid information about Western Electric audio equipment. This work is the result of many months of research poring through obscure documentation.

This book is much larger than Volume One of the series, which gave information for dating Western Electric vacuum tubes. It covers 141 speakers, horns, attachments, enclosures and drivers that constitute most, if not all, of Western Electric's production from the 1920s through 1960 in these areas. It is not

a book for bedtime reading; indeed, there is almost no text. Instead, it lists, in model number order, all of the pertinent Western Electric equipment. For each model a description and specifications are given as found from available data. For some models, there is very little, for others quite a bit more. Most drawings are accompanied by some form of illustration: either a line drawing or a picture taken from original literature.

After a brief Forward by the author, there is a Preface containing a copy of a 1949 price list. This gives the reader a perspective on the value of the equipment when new. What follows is a Table of Contents listing each model and then the body of the work: the compilation. The book ends with a comprehensive Bibliography listing the source for each model appearing in the book. This will be useful to those who are fortunate to possess Western Electric literature.

On the up side, this book represents one of the very few available sources documenting Western Electric's horn and speaker production. It contains quite a bit of material on studio monitor speakers and theatre horn systems. Mr. Nadel has worked hard to provide a comprehensive listing that will benefit all of those who are interested in Western Electric audio equipment. For those of us who need help identifying and understanding Western Electric speakers and horns, one hopes the book's perfect binding will hold up to the extensive use it will receive! Since each component had a model number as well as the complete assembly, this book will be very helpful in deciding what part went with which other part.

On the down side, one would wish for more and better illustrations. The line drawings came out well, but the quality of the pictures is quite variable. They seem to have come from old catalogues, service literature, company bulletins and publications, and reflect the varying quality of the originals. Perhaps, in the next edition, the illustrations could be improved by using modern photographs of the equipment.

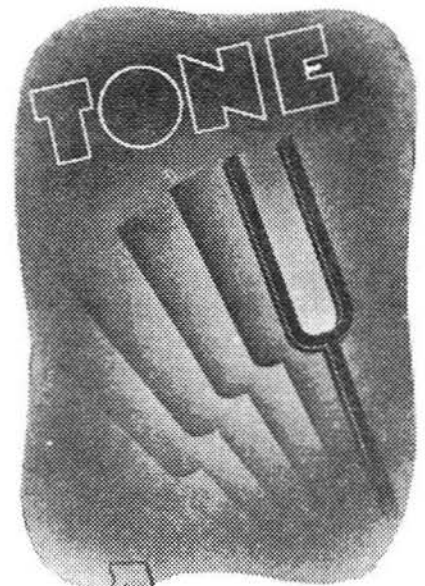
Since Western Electric was independent from mainstream consumer electronics, they tended to have their own language. For instance, a cone speaker or horn and driver were called "Loud Speaking Telephones", yet horn drivers were referred to as "receivers."

Horns without drivers were called "horns." A short glossary would have been helpful to explain Western Electric terminology.

Mr. Nadel has done a fine job compiling data on Western Electric horns, speakers and related equipment. One looks forward to seeing the other books in the series. *The Western Electric Loud Speaker and Horn Compendium* is available from the author at the above address for \$20.00 plus \$3.00 postage and handling (California residents add appropriate sales tax) and is also available from Antique Radio Classified and Antique Electronics Supply.

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Paul recently received the Charles D. "Doc" Herrold award for his exceptional accomplishments in the field of early radio history and preservation.



not needs carefully made tubes to reproduce tone accurately, and in volume. Tung-Sol tubes qualify. They are mechanically right the kind upon which a service organization can stake its reputation.

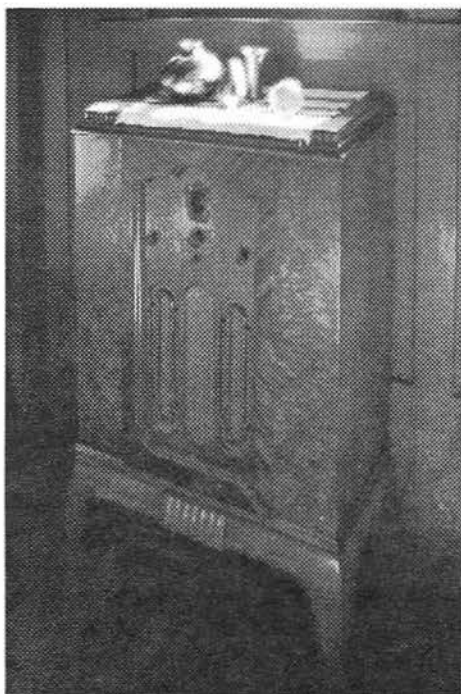
TUNG-SOL
Flow-Flow Radio Tubes
Tung-Sol Lamp Works, Inc.
Radio Tube Division
NEWARK, N. J.



The Philco Corporation

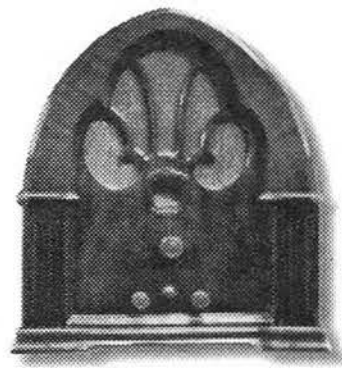
1892-1961, historical review series Part I

By John Paul Wolkonowicz



1931 Philco Model 112 from Don Shelman's collection.

Photo: S. Sutley



1931 Philco Model 90 from John Wentzel's collection.

Early history 1892-1927

In the spring of 1892, Thomas Spencer organized a small company in Philadelphia for the purpose of producing carbon arc lamps and associated equipment. Initially, the new firm was called the Spencer Company, but on October 11, 1892, the company changed its name to the Helios Electric Company after purchasing the U.S. patent rights of a German firm of the same name. At this time, the firm which would eventually evolve into the Philco Corporation was officially incorporated.

In 1906, the company was reorganized as the Philadelphia Storage Battery Company with five stockholders and \$10,000 paid in capital. The charter set forth by the five incorporators gave them the powers of "manufacturing, contracting for and furnishing material and appliances relative to the use and application of steam, electricity, water, heat, power, natural and artificial gas." The five owners were listed as Frank S. Marr, President and Sales & Advertising Manager (Marr remained President until his death on December 1, 1916); Edward Davis, Secretary & Treasurer; E. Earle Everett, Superintendent of the Plant; Edward Yarnall and a Mr. Witmer.² The company's initial products were storage batteries for electrically propelled cars, trucks, launches and mine locomotives.

It is interesting to note that early Philco corporate histories make no mention of the Helios Electrical Company. They trace the company's history back to 1906 and the incorporation of the Philadelphia Storage Battery Company. Later company histories move some of the events of 1906 back to 1892 in an attempt to link more closely the Helios Electric Company to Philco. My suspicion is that when the Philadelphia Storage Battery Company was organized in 1906, it purchased the remains of the ailing Helios Electric Company; this being Philco's only tie to the company founded by Thomas Spencer in 1892.

Business in these early years was not particularly strong. Until the advent of electric lighting and the self-starter for automobiles, in 1911, the market for storage batteries was relatively small. Philco legend states that at one point in these early years, the Plant Superintendent was forced to scrape soot out of the factory smoke stack in order to secure a supply of carbon for the battery plates and,

thus, continue production in a time of scarce capital.

The company continued to grow however. By 1910, the Philadelphia Storage Battery Company was soundly financed and had declared a profit of \$30,517. By 1913, sales had reached \$576,000. The supply of auxiliary electric systems for battleships to the Navy during World War I allowed the company to record its first million dollar sales year (\$1,600,000) in 1917. From this point forward, the company grew steadily even though it was never able to crack the lucrative original equipment market for automobile storage batteries (its Philadelphia competitor, the Electric Storage Battery Company, maker of Exide and Willard batteries claimed the lead in this field).

During 1919, the Philadelphia Storage Battery Company adopted a new and aggressive marketing strategy. In an attempt to capture an increased share of the aftermarket auto battery business, the firm adopted the name "Philco Diamond Grid" for its batteries and began an advertising blitz in national magazines such as the *Saturday Evening Post* and the *National Geographic*. The company tried to differentiate its Philco batteries in a clever series of ads showing a motorist put in a precarious situation by a dead storage battery saying, "And then I got my Philco!"

This campaign was apparently quite successful since sales jumped to \$4,300,000 in 1920 despite a crippling plant fire. But due to the postwar recession, sales fell by \$1,000,000 in 1921. Fortunately for Philco, a new industry with a seemingly insatiable demand for storage batteries developed literally overnight in 1922—radio.

Until 1920, the radio business was concerned primarily with point to point wireless telephone and telegraph communications. The few home radio sets in existence were owned by "amateur operators" who used their outfits to communicate with one another and to listen in on commercial communications.

The Westinghouse Electric and Manufacturing Company changed radio from a commercial tool to a means of mass entertainment when it opened broadcasting station KDKA on November 2, 1920 to broadcast the Harding-Cox election returns. By the end of 1921, twenty-three broadcasting

stations were on the air. At the end of 1922, there were 580¹³. In 1923, more than 200 manufacturers produced 550,000 radio receivers, most of which required a storage battery to light the tube filaments. Philco General Manager, James M. Skinner, who had instituted the advertising blitz back in 1919, wasted no time in getting Philco into the radio battery business.

By 1923 advertisements appeared in the popular radio enthusiast magazines announcing "Philco Drynamic A & B Radio Batteries" and "Philco Trickle Chargers." The Drynamic batteries particularly appealed to dealers because they were shipped dry with the electrolyte added at the time of the sale. In typical Skinner style, Philco's radio battery ads were large and prominently placed. Sales in 1924, the first full year of radio battery production, shot up to \$4,700,000.

In August, 1925, Philco announced to the trade its line of Socket-Power units which were essentially self-charging electrolytic power supplies that did away with radio batteries entirely. At the same time, the company announced a progressive dealer sales program which instructed the dealer on the latest sales techniques to snare the customer. Backed by a \$600,000⁴ advertising budget, Philco's 1926 sales reached \$12,800,000 with 400,000 Socket-Power units sold. Philco claimed that in the 1926-27 season, over 200,000 people wanting Socket-Powers couldn't be supplied.⁵ Sales predictions for the 1927-28 season were set at over one million units, and the company began sponsoring the weekly Philco Hour over a nationwide network chain.

Philco's 1927 sales amounted to \$15,400,000 with 500,000 Socket Powers being sold. Despite the fact that this was Philco's best year yet, by the end of 1927 the market for radio batteries and Socket-Powers had almost disappeared. In August, 1927, the Radio Corporation of America had introduced a series of vacuum tubes whose filaments could operate on raw AC. Almost immediately, the major radio manufacturers introduced sets utilizing these tubes and containing built in power supplies which did away with batteries and Socket-Power units entirely. The Philadelphia Storage Battery Company was facing a catastrophe. Its entire manufacturing plant had become obsolete overnight. In an

attempt to escape extinction, Philco entered the highly competitive radio receiver manufacturing industry. Radio set manufacturing was a logical choice, since it would allow Philco to continue to utilize its existing dealer organization and reputation among radio enthusiasts with a new product.

Success 1928-1937

Historical review

The period 1928 to 1937 is probably the most exciting in Philco's history. During this period, Philco transformed itself from a nearly defunct producer of storage batteries and radio power supplies into the nation's leading manufacturer of radio receivers. Philco's success in this era was far more than just luck. Instead, it was the result of a carefully strategic plan designed by a very able management team. Because its production, product, marketing and distribution strategies were considerably more sophisticated than the strategies of most of the competition, Philco was able to assume its position of leadership within three years of entering the industry. But, by the end of this period, Philco's competition had become considerably smarter, and companies like RCA and Zenith began making inroads into Philco's dominant market position.

In 1928, the radio set manufacturing industry was six years old. Thus, it may sound strange to term Philco's entry at this point as late. Yet, by 1928, the radio industry was already beginning to show some signs of maturity. The industry consisted of seventy manufacturers with sixteen new entrants and eighteen failures. Just two years earlier there were 115 manufacturers, 161 new entrants and 261 failures.

Technological advancement had been rapid between 1922 and 1928. In 1922, the typical radio receiver was an unsightly, finicky, complicated device operated by external batteries and usually listened to through headphones. The typical radio of 1928 was an easy to tune, reliable, self-contained, AC-powered instrument often housed in an elaborate furniture cabinet. Progress in this period was so rapid that a one-year-old radio was often hopelessly obsolete. The radio industry further capitalized on this rapid obsolescence by adopting the concept of the annual model change, a tactic that was already

common in the automobile industry. Radio receivers of the 1924-1942 period can be easily identified as to year of manufacture by certain common yearly styling changes which manufacturers adopted. New models for the next year were introduced with great fanfare at the annual RMA (Radio Manufacturer's Association) Trade Show which was held each June. The June date for the Trade Show was not chosen haphazardly. Radio was an extremely cyclical business. By introducing their new lines to the dealers in June, manufacturers could make last minute changes in response to dealer suggestions and competitive pressures before significant production began in July.

Radio sales in 1928 totaled 3,281,000 sets with a retail value of \$400,000,000 and an average unit price of \$122.00.⁶ This was up considerably from the 1,350,000 sets sold in 1927. With seventy manufacturers, one would expect the radio industry to have approached conditions of perfect competition. This was not the case, for the bulk of the business was enjoyed by the top five or ten manufacturers. Restrictive patent licensing practices were a major cause of these conditions, but business acumen among the top manufacturers played an important role as well.

1928 - Philco's Entry into the Radio Industry

From the preceding discussion, it is clear that Philco was facing stiff odds in entering the chaotic radio industry in 1928. Along with Majestic, however, Philco possessed an important asset which the other fourteen entrants to the industry that year lacked—an established dealer organization. Philco had worked hard in the radio battery and socket power days to build a solid dealer network. Taking a page out of the Atwater Kent book, Philco had always treated its dealers fairly. This strategy would pay off handsomely over the next few years.

In order to obtain licenses under the RCA and Hazeltine patents, Philco bought the ailing William J. Murdock Company of Chelsea, Massachusetts, for \$100,000 on February 10, 1928.⁷ The Murdock Company dated back to the early days of wireless and was one of the original fourteen members of the Neutrodyne group. In order to gain access to important loudspeakers patents, Philco purchased the

Timmons Radio Products Corporation of Philadelphia, a maker of radio loudspeakers.

The Philco Neutrodyne-Plus was introduced to the industry at the RMA Trade Show at the Hotel Stevens in Chicago the week of June 11, 1928.⁸ In the June, 1928, issue of *Radio Retailing*, the leading trade magazine of the industry, Philco introduced its line in an eight page, four-color, glossy paper supplement. Philco's first receiver line consisted of one seven-tube chassis, known as Model 511, installed in one of seven cabinets: a Louis XVI highboy, a console or a metal table-top cabinet available in furniture brown or with a hand-painted floral designed cabinet in Labrador grey, Nile green or mandarin red. In addition, a "console-grand" speaker table or individual speakers painted to match the table model receivers were available. Cabinets were designed by the famous furniture designers Hollingsworth-Pearce and Albert Carl Mowitz.

Despite all the advertising claims, however, the Philco Neutrodyne-Plus chassis was of conservative and standard design. Its one claim to fame was the fact that its AC power supply was built right into the receiver chassis instead of being a separate unit as on most other receivers. Philco emphasized the concepts "All Electric" and "Entirely Dry" to dispel any notions the public might have that this new radio might use the old-fashioned "Philcotron" wet-rectifiers. In order to test out the market before making any substantial financial commitments, Philco bought most of the 511's components from outside suppliers, merely assembling them at the Ontario and C Street factory.

Philco management had several objectives for this first line of receivers. First, it had to be of extremely high quality to convince the radio public that the Philco reputation for quality was being continued. This objective was achieved. Secondly, Philco wanted to convince its existing and potential dealers that it would treat them fairly and would not, under any circumstances, dump merchandise—a practice that was common in the volatile radio industry at this time. The second goal took a while longer to achieve.

The Philco introductory ad promised dealers exclusive territories, an advertising campaign that "blankets the nation", national broadcasting of the weekly Philco Hour over thirty-six stations, a trade-in plan for old radio sets, and a liberal dealer financing plan. When

the results for 1928 were tallied, Philco wound up twenty-sixth in the industry selling 96,000 of the industry's 3,281,000 receivers. This was not a particularly bad showing considering that substantial stocks of Philco receivers were available only during the last four months of 1928. But, compared to Majestic's spectacular performance, Philco ranked a distant second among the newcomers.

For 1928, Philco was testing the market. They added no new plant capacity until December, 1929, when 100,000 square feet was added, thus doubling Philco's receiver capacity.⁹ Philco General Manager, James M. Skinner, summed up the firm's 1928 strategy by saying, "In 1928, our job was to walk before we ran; to make a good set and to establish a reputation for quality."¹⁰

By Skinner's measures, Philco's 1928 performance was successful. But Philco did make one important product blunder in its introductory line which Majestic did not. Philco receivers in 1928 came equipped with an ordinary magnetic loudspeaker of the type which had been in vogue for the past two years. Majestic, on the other hand, fitted its first receivers with the new and powerful electrodynamic loudspeaker. It was this feature, more than any other, that set Majestic apart from its competition and caused it to rocket to the top of the industry in its first year and a half. Philco wasted no time correcting this oversight, however. By January, 1929, an improved model was introduced which included a higher-power push-pull output stage and a new electrodynamic loudspeaker. Housed in a cabinet similar to the Majestic 71, this new model was priced at \$157.00. In the introductory ad for this receiver, Philco claimed "1929 is a Philco year!"¹¹

1929- Mass Production

1929 would prove to be a trying year for the Philadelphia Storage Battery Company. After testing the receiver market in 1928, Philco decided to expand. According to Jim Skinner, "In 1929, our job was to go out after volume and get it quickly before competition gained control."¹² To do this, Philco decided to adapt mass production techniques to the assembly of radio receivers. The project was completed in April, 1929, but in May the new assembly line halted. When the production line began rolling again in August, Philco was faced with a three

month demand backlog.

But that was not the end of Philco's problems. In order to be competitive with industry practice, Philco sold radios to its distributors on time. The distributors then sold to the dealers on time who in turn sold to customers on time. The distributors either waited for the dealers to pay up before paying the factory or went to the banks to sell their "paper." It appeared as if Philco's days in the radio manufacturing industry were over before they really had a chance to get started.

In spite of the stock market crash, Philco finished 1929 by selling 408,000 sets¹³ out of an industry total of 4,428,00¹⁴ to capture third place (behind Majestic and Atwater Kent) in the industry. This allowed Philco's management to repay all loans by March, 1930, much to their relief! The rest of the trade watched in disbelief as the two newcomers to the industry, Majestic and Philco, grabbed off the lion's share of sales. Most predicted a fast burn out for these two rising stars. In the case of Majestic, they were correct, but Philco had laid its plan carefully and would continue its meteoric rise.

Of course Philco's success in 1929 would have been impossible without an excellent product line. Product strategy in 1929 was to increase quality and to lower prices—as much as possible. The 1929-30 line introduced at the June Trade Show offered excellent value for the money. All the latest technical advances were embodied in two chassis housed in four nicely styled cabinets. Jim Skinner was already earning his title of "price cutter" due to the value he was offering in Philco receivers. But the buying public knew good value and lined up to purchase Models 65 and 87.

In October, 1929, Philco introduced the first of many technical innovations to come when it unveiled Model 95, also called Screen Grid-Plus. Model 95 was a nine-tube T.R.F. receiver which incorporated one of the first automatic volume control (A.V.C.) systems in the industry. The circuit, designed by Hazeltine's Harold Wheeler, was made available to Philco through its Hazeltine license. (A.V.C. is a system which keeps stations of varying strength at the same volume, thus, preventing blasting when turning down the dial.) Priced at only \$149.95 in an attractive lowboy cabinet, the Screen Grid-Plus became an instant success.

1930 - Market Leadership

During 1930, Philco earned the top sales position in the industry and in the process incurred the wrath of its competitors. Due to the stock market crash and the rapidly contracting economy, industry experts were predicting 1930 radio sales to be only about fifty to sixty percent of the sales achieved in 1929.¹⁵ According to Sayre M. Ramsdell, Philco's Promotion Manager at the time, "If we were to maintain sales where we had them the previous year, we realized we would have to do something truly aggressive. So we introduced a small, compact, comparatively inexpensive radio."¹⁶

The idea of producing a compact or "midget" receiver was not originated by Philco. In early 1930, several of the smaller manufacturers had introduced small, speaker over chassis receivers shaped like gothic arches to sell at prices around \$50. When compared to the average receiver price of \$133 in 1929, this was quite a drop.

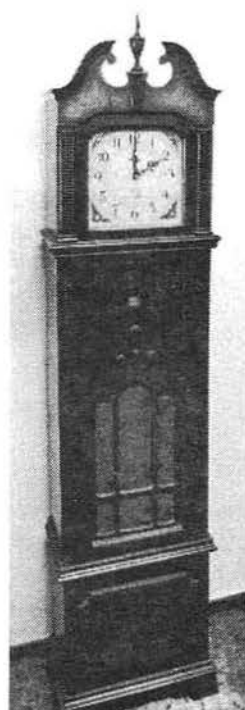
Although Philco did not originate the midget receiver, they were the first major manufacturer to adopt this style. The famous Philco Model 20, Baby grand, a seven-tube T.R.F. receiver in "regulation" gothic cabinet, was introduced to the trade in August, 1930. Radio Retailing stated, "There is a genuine significance in Philco's announcement of a midget at \$49.50 less tubes. This looks like the start of a new trend."¹⁷

The initial reaction by the industry's other major manufacturers was to look the other way and hope the public would too. Even some dealers were initially skeptical on the profit potential of these small sets. But to the depression torn public, the model 20 proved to be just the radio they were waiting for. In less than one year, 343,000 of these compact receivers were produced.

During 1930, Philco also entered the vacuum tube business which, coupled with its midget receiver, further angered the Radio Corporation of America [RCA]. Philco had been one of RCA's biggest customers. During 1930, a tiff developed between Philco and RCA causing Philco to shift its tube business to two smaller, independent tube manufacturers, Sylvania and Hygrade. To sweeten the deal, the two independents agreed to put the Philco brand name on their tubes,

thus, moving Philco into the tube marketing industry in direct competition with RCA. By 1934, Philco had gained nearly twenty percent of the replacement tube business!¹⁸

1930 had been a difficult year for most of the rest of the industry. Atwater Kent had decided to cut back, promotionally, for the period of the depression.¹⁹ By late 1930, B.J. Grisby and William Grunow had separated and Majestic's star was fading quickly. Consequently, when the sales results for 1930 were counted, Philco was in first place, having sold 616,000²⁰ receivers out of an industry total of 3,827,000.²¹ Philco dollar sales for 1930 reached \$34,000,000,²² up forty eight percent from 1929.



1931 Philco Model 570
7-tube Grandfather
Clock from Karl
Manthei's collection.

1931- Widening the Gap

In early 1931, most of the radio industry looked upon Philco's position of leadership as temporary. "How could a company that specialized in midget receivers continue to make money," they asked.

During 1931, however, Philco evolved a merchandising plan to ensure continuation of sales leadership by enabling the company to claim a large share of the industry's higher-priced set business as well as of the lower-priced set market.

Philco began expanding its line in January,

1931, by introducing an eleven-tube superheterodyne, Model 111, to the high end of its line. RCA had made the superheterodyne patents available to its licensees late in 1930 and Philco wasted no time in getting this superior receiver into production.

At the RMA Trade Show in June, the line for 1931-32 was expanded to include seven and nine-tube Baby Grands; seven, nine, and eleven-tube lowboys; seven, nine, and eleven-tube highboys; and seven and eleven-tube radio-phonograph combinations. All models used the superheterodyne circuit and the eleven-tube models were housed in striking cabinets styled by noted industrial designer, Norman bel Geddes. Prices ranged from \$49.95 for model 70 B, the seven-tube Baby Grand, to \$295 for the model 212, an eleven-tube radio phonograph combination. Within a few months, Philco had introduced a price leader five-tube Baby Grand at \$36.50 (Model 50) and two novelty sets, Model 570, a seven-tube receiver housed in a grandfather clock cabinet (\$89.50) and Model 370, a seven-tube receiver housed in an end table cabinet by Norman bel Geddes (\$69.50).

The newly burgeoning automobile radio business did not escape Philco either. In December, 1930, they purchased the Automobile Radio Corporation and formed a new subsidiary, the Transitone Automobile Radio Corporation. With automobile radio, Philco hoped to fill in the summertime dip in home radio sales. By January, 1931, Philco had a seven-tube Transitone auto radio on the market at \$65.00, one of the first auto radios priced under \$100.00. The public responded and Philco sold 37,000 of these units in 1931.²³

By April, 1931, Philco's performance with its Baby Grand receivers had forced Atwater Kent and RCA to introduce midget receivers of their own. Zenith followed a few months later. They complained that Philco was ruining the industry by lowering the price of the average sale. The other manufacturers eventually caught on to the usefulness of the midget, but that did not stop them from continually attacking Philco as a "price cutter" and as the "bane of the industry."

Philco's aim in 1931 was to sell 1,000,000 radios.²⁴ They nearly achieved this goal by selling 977,000²⁵ receivers out of an industry total of 3,420,000.²⁶ Philco dollar sales for 1931, however, remained at \$34,000,000²⁷

despite the fact that unit volume had increased by nearly fifty percent. This was of little concern to Philco, however, since they were one of only a few manufacturers who made a profit in 1931, and they succeeded in their goal of widening the sales gap between themselves and the rest of the industry.

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22. *Fortune*, February 1935, p.160

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John Paul Wolkonowicz is a nationally prominent historian, collector, and preserver of Philco products and related information. He has graciously allowed CHRS to reprint large portions of his in depth research project originally submitted as a M.S. thesis at the Massachusetts Institute of Technology. CHRS is grateful for Mr. Wolkonowicz's continuing support of radio history and eagerly looks forward to publishing the rest of this series and future articles in the Journal.

Mr. Wolkonowicz has offered to provide a full transcript of his thesis for \$30 which includes a detailed analysis of Philco's marketing and management strategies, and a profile of the other major manufacturers during this time. He can be contacted at 11 Hartford Rd., Worcester, Massachusetts 01606-1511.

Ed. Note: Edward L Combs designed the 1931 gothic-arched Baby Grand cathedrals with heavy fluted columns worked into the front

panel—now icons of classical radio design. Bel Geddes would go on to prominence as an industrial designer promoting Modernism, e.g. the 1940 Emerson Patriot radio, and streamlining a variety of consumer products.



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Attorney at Law
88 Kearny Street, ste 1310
San Francisco, CA 94108

January 5, 1999

Don Kojjane, President
Perham Foundation
Sunnyvale, CA via FAX 650 473 6468

Re Maritime Radio Museum

Dear Don:

As you and Will Jensby are aware, the National Park Service Maritime Museum in San Francisco is devoting a floor to Maritime Radio. This is an endowed Maritime Radio Museum, hoping to open in late August. I am consulting with Mary Lou Herlihy, NPS Exhibit Designer and Richard Everett, Curator of Exhibits. They are very pleased that the Perham Foundation might cooperate with the new Maritime Radio Museum. This presents an opportunity for the Perham Foundation to create a San Francisco presence, get many of its artifacts on exhibit, and lay the groundwork for a major presence in the Presidio. This activity will, of course, have the support of C.H.R.S. as well.

They are seeking help in telling local wireless and radio maritime related stories, with artifacts and related materials. I have talked to them about the 1899 first marine wireless work in the United States between the San Francisco lightship and the Cliff House (also NPS jurisdiction). The Dollar Line and Dollar-radio Co. will be of great interest, as well as other Ralph Heintz maritime adventures (e.g., his yacht). The PH story leading to the Marconi, RCA KPH operations at Marshall, etc. is good. Any early maritime wireless gear will be instructive. Early vacuum tube maritime gear, and early maritime VHF gear will tell interesting stories. Radio direction finding as a navigational aid (Kolster, etc.) is something they are interested in. The Federal story, particularly the SF Beach Station is of interest. The Navy work from Mare Island (1903 and after) is an untold story. Sonar and Radar can make working displays.

Can you help?

Bart Lee

*For the Restoration and Preservation of
Early Radio and Radio Broadcasting*

Radio's Roots: The Development of the Modern Receiver

Alison E. Beck, KE6ZIR

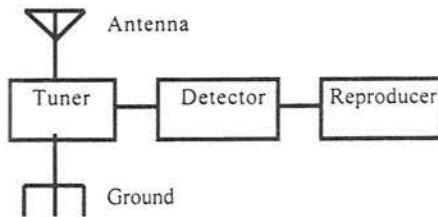


Fig. 1 Block Diagram of a Crystal Set

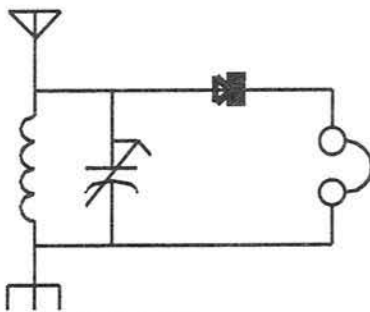


Fig. 2 Schematic of a Crystal Set

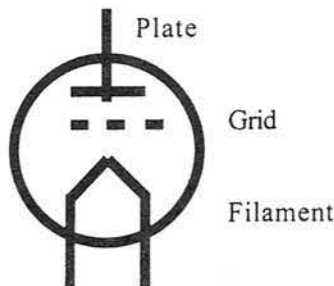


Fig. 3 Schematic of a Triode Vacuum Tube

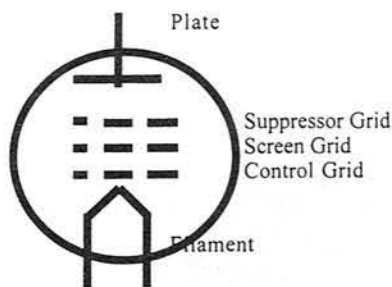


Fig. 4 Schematic of a Pentode Vacuum Tube

The history of the development of the radio receiver, from its infancy to the modern AM superheterodyne receiver, is a complex arrangement of problem solving skills and trial and error. As has often occurred in the history of invention, radio was discovered by accident.

In 1864, Scottish mathematician, James Clerk Maxwell, predicted the existence of radio waves through a complex mathematical formula, but it was not until 1888, when German inventor, Heinrich Rudolf Hertz, unwittingly transmitted a radio signal across a space of about five feet, that radio waves were first transmitted and received. In 1873, Maxwell published his seminal work *A Treatise on Electricity and Magnetism*, which outlined the nature of the electromagnetic spectrum and claimed that electromagnetic waves travel at the speed of light. Later in 1888, when Hertz measured the speed of the waves he transmitted, he also found they traveled at the speed of light, confirming Maxwell's premise.

Hertz died an untimely death not long after his discovery, but his work lived on in the experiments of Italian inventor, Guglielmo Marconi. In 1890, Branly, a French inventor, had invented the Branly coherer, an early form of the detector, and in 1894, Marconi used the Branly coherer to develop an antenna-ground system. He transmitted Morse code over a distance of two miles. Marconi then patented Hertz's original apparatus in 1896, and the radio was born. In that year, Marconi also founded The Wireless Telegraph Signal Company, and in 1901, he was the first to transmit Morse code (or CW for Continuous Wave) across the Atlantic Ocean. This brought radio into the 20th century.

After the coherer Morse code sets, General Dunwoody developed the crystal set in 1906. As can be seen in figure 1, the block diagram of a crystal set is uncomplicated, making it possible for many radio amateurs to build them in their homes. The crystal set works without a battery and is thus a remarkable source of free radio. Its drawbacks are that its selectivity (the ability of the tuner to select one radio station signal and reject all others) and sensitivity (the ability of the receiver to respond to radio waves of very low strength) are not optimal. In addition, the antenna-ground system creates capacitance as radio

waves travel up and down that unit. The builder can reduce this capacitance by the introduction of a trimmer capacitor on the antenna line.

Figure 2 shows a schematic of a crystal set. The antenna-ground system collects radio waves, where they flow up and down in an alternating current. Some of this alternating current will flow through to the ground, but the radio frequency selected (i.e., those waves oscillating at a specific frequency) will pass into the tuner. The tuner, which consists of a coil and a capacitor, selects that one radio frequency and allows it to travel to the detector. Electrons flow into the detector, but only in one direction, because the detector acts like a "gate"; it allows electrons to flow in one direction, but not the other. The detector modifies the radio frequency, changing it from an alternating current into a pulsating direct current audio frequency. The detector in most crystal sets is a galena or carborundum crystal with a wire that touches its most sensitive area, and is called a cat's whisker. After the modified audio frequency leaves the detector, it flows into the headphones (or reproducer) where the pull of an electromagnet amplifies the sound and the listener can hear it.

Another drawback of the crystal set was that resistance in the antenna and ground circuit adds to the resistance of the tuning circuit causing the tuner to tune broadly, thus potentially receiving two stations at the same time. A better arrangement is one where the tuner could pick up electrical currents flowing in the antenna-ground without also transferring the antenna-ground resistance. If the resistance of the tuner was less, the tuner could tune more sharply.

Tuner selectivity was improved by virtue of a transformer, which involved connecting the antenna-ground to a primary coil and designating the tuning coil as a secondary coil. The current then flows in the primary coil and induces an alternating current in the secondary coil, reducing the resistance in the secondary coil. This was one small way of solving the resistance problem while increasing the signal through a "step-up" transformer from the primary coil to the secondary.

Later innovations allowed the diode vacuum tube to replace the crystal in this receiver. Thomas Edison invented the vacuum tube in 1883, also by accident. While trying to invent

the light bulb, he placed a filament in a glass bulb and created a vacuum by pumping out the air. Edison noticed a black substance on the glass, so he placed a small plate in the tube. When measured, he found a current flowing from the filament to the plate. He simply noted this in his notebook and continued other investigations. We now call this phenomenon that occurs when a filament heats to incandescence, the Edison effect.

In 1904, English inventor, J. Ambrose Fleming attached a battery to the filament and one to the plate. He then experimented with alternating current instead of direct current and he found the vacuum tube acted like a valve or gate, allowing current to flow in only one direction. Thus, amateurs and inventors called the early tubes Fleming Valves and their function was to act as a detector of the current flowing through them. This was the birth of the vacuum diode tube.

In 1907, American Lee DeForest invented a triode vacuum tube that further revolutionized early electronics: the triode amplified both radio frequencies and the audio signal, and led to the development of the loudspeaker. The triode consists of a filament, grid, and plate (see figure 3). The grid acts as a screen, further modifying the flow of electrons.

The triode vacuum tube worked quite well, but had one major drawback: a phenomenon called "secondary emission" often occurred during use. Secondary emission occurs when electrons flowing at high speeds from the filament strike the plate with force, knocking off some of the electrons collected there. These electrons are either pulled back to the plate or to the nearby screen grid which has a net positive charge. The electrons pulled to the screen grid reduce the number of electrons left on the plate and diminish amplification.

To remedy secondary emission, another grid was later placed between the screen grid and the plate. This grid is connected to the filament. Thus, it has a net negative charge as does the filament. This grid (called the suppressor grid) repels any electrons knocked off the plate by secondary emission and they return to the plate. Thus the pentode tube was born. The pentode consisted of five parts: a filament through which electrons flow; three grids (the control grid, the screen grid, and the suppressor grid); and a plate that collects electrons (see figure 4). The pentode, like its

predecessor the triode vacuum tube, both detects and amplifies the radio frequency signal.

Also in 1907, American inventor Edwin Howard Armstrong developed the regenerative receiver. This invention made him truly famous—one of the few millionaire inventors of his time. Despite lengthy litigation over its patent, many recognize Armstrong as the father of the modern radio receiver. For four years from 1918 to 1922, Armstrong fought a legal battle with Lee DeForest over the proprietorship of the regenerative circuit. Armstrong won the court case, but then sold the patent to Westinghouse.

The battle continued nonetheless years later and finally ended in 1934 when the U.S. Supreme Court ruled that DeForest was the inventor of the regenerative receiver. Many people in the scientific community challenged that assertion and continued to support Armstrong as the inventor of the regenerative radio. Today, most radio amateurs give credit largely to Armstrong, but he led a troubled life throughout this litigation, culminating in his suicide in 1954.

Armstrong's regenerative circuit works by "feeding back" a portion of the amplified radio frequency waves emerging from the vacuum tube back into the tuner. Thus, the set amplifies the received radio frequency many times over, up to and even over one thousand times. This increases both the selectivity and sensitivity of the receiver, and revolutionized the development of radio. Its primary drawback, however, was the squealing and squelching of the set as it regenerates. This set can oscillate, and tuning is optimal at the point just before oscillation; "feed-back" noise is also quite loud just before that point. Once tuned, however, this set receives radio stations with remarkable clarity.

Using a pentode tube, the regenerative set became a powerful receiver. Yet it works even better when the builder substitutes a transistor for the vacuum tube. The transistor, first invented in an AT&T lab by Shockley in 1948, performs much the same function as the vacuum tube, but with improvement; it allows a tremendous amplification of signal, takes up very little space, and generates little heat.

In 1918, Armstrong invented the superheterodyne receiver. The superhet, as it is commonly known, works by mixing a tuned frequency of

a selected station with another frequency produced by a local oscillator to produce a beat frequency. We still use the superhet today, with modifications, as the standard AM receiver. Thus the radio receiver has progressed from its genesis in Hertz's lab to its sophisticated form today. Radio will continue to provide us with ample opportunities to solve complex electronic problems as we continue in the future to develop better ways to transmit and receive wireless signals.

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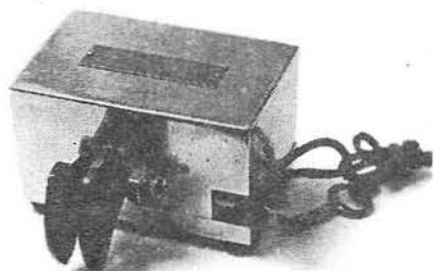
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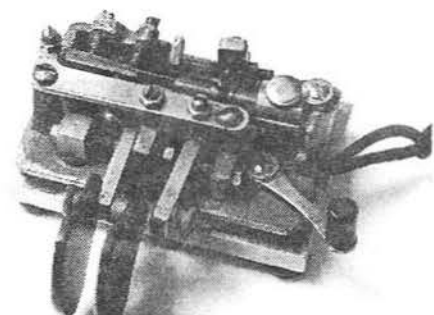
California Manufacturers of Semi-automatic Telegraph Keys Part 1

Larry Nutting, K7KSW

This is the first part of a two-part article that will cover seven California manufacturers who at one time made semi-automatic telegraph keys (a.k.a. "bugs"). The term semi-automatic refers to the fact that these keys automatically make dots. Some readers may question that there has been seven, but I count a manufacturer as distinct if the manufacturer's name is different, even if the brand name stays the same. The first part will be about the very unique semi-automatic keys made by three southern California manufacturers (Ultimate Transmitter Co, Melvin E. Hanson, and Schultz Tool & Machine Mfg. Co.) The second part will deal with four manufacturers that were located in northern California (Speed-X Radio Mfg. Co., Les Logan Co., Electro Mfg Co., and Leach Relay Co.).



Original Model Ultimate



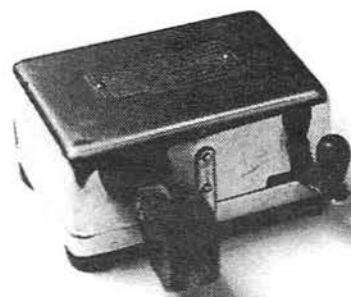
Original Model Ultimate without Cover

Ultimate Transmitter Company

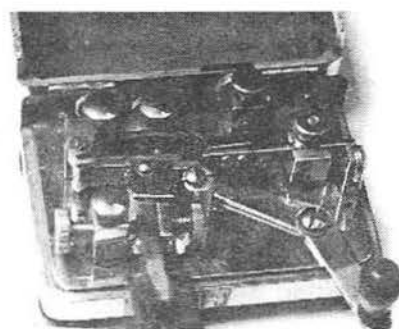
This company was located in Los Angeles and used the trademark "73" inside a 5-point star; thus these keys have often been called "73" bugs. Ultimate Transmitter Co. was one of the few to make what is called a "right angle bug"—Mecograph of Cleveland, Ohio was another one. But, the most unique thing about the Ultimate Transmitter keys, is their small size. It is also one of the few bugs to have a protective cover – and the only one to have a cover that locks with a key. These miniature bugs were frequently used as portable instruments, and the cover did a good job of protecting the mechanism. Unfortunately, the cover did not protect the bakelite paddles, so these keys are usually found to be missing the original paddles. I have not been able to locate any information showing how the company distinguished between the different models it made, so have taken the liberty of giving each of the models a name.

The earliest model, which I call the original, has a cast bronze cover and base with square edges, and is chrome plated. There is a built-in lock with the keyhole on the underside of the base. All that I have seen have "PAT JUN 23, 1925" stamped into the front edge of the base. The approximate base size is $2\frac{1}{4}$ " x $3\frac{1}{2}$ ", with an overall height of $2\frac{1}{4}$ ". The circuit closer and paddles are black. There are two levers coming out through the cover. The small instruction pamphlet states: "Machines are shipped from factory with both paddles on one lever for single lever use, but transmitter can be converted into double lever by removing left paddle and moving it to right hand lever." As a single lever it operated in the conventional manner – pressing to the left was used for manual dashes and pressing to the right caused "autodots." The serial number was stamped into the underside of the base. Metal castings were used for many internal parts – some are rather crude.

One of the later models is what I call the single-lever model. It also has a base and cover of cast bronze that is chrome plated. But this model has rounded edges, a hinged cover, and a snap closer. It was apparently nicknamed the "flip-top bug" by early operators. The size is also a little larger, with the base of approximately $2\frac{5}{8}$ " x $3\frac{13}{16}$ ", and an overall height of either 2" or $2\frac{1}{8}$ " (later serial number keys had a thicker base). These keys



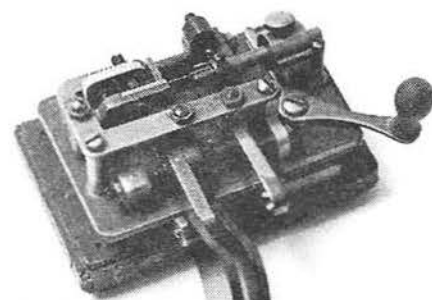
Single-lever Model Ultimate (paddles not original)



Single-lever Model Ultimate with Cover Open

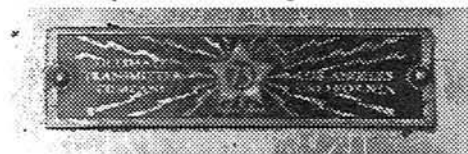
have a red knob for the circuit closer, but I'm not sure about the color of the original paddles. A new larger nameplate is used that includes: "Patd 6-23-25." The serial number was also stamped onto this nameplate. This model has a single lever with two paddles, so did not offer the flexibility of letting the user convert to double lever operation. The mechanism on the single-lever model was simplified from that on the original, and the quality of the parts was greatly improved – all metal parts were now chrome plated.

There is also the amateur model (I refer to it as the amateur model because the base and cover were cheapened and it was the only model advertised in QST). The base and cover are die cast pot metal and it has a "black frosted enamel finish." Because of the poor

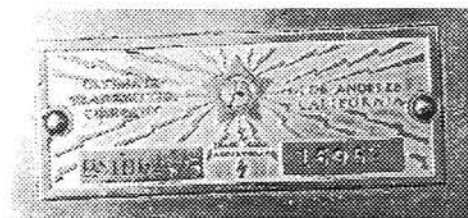


Amateur Model Ultimate without Cover

quality of the pot metal, the base and lids are usually badly cracked and disintegrating. This key also had a built-in lock just like on the original model. Although the edges are squared off and it is of the double lever design, the size is essentially the same as the chrome plated single-lever model, rather than the original model. While the base and cover have proven to be inferior to those on the original, many of the internal components were actually improved—better design, casting, and machining. The amateur model uses the same new nameplate as on the single-lever model.

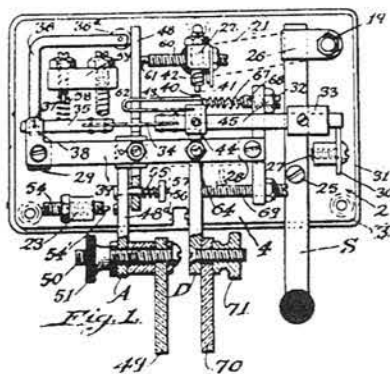


Nameplate Style for Original Model



Nameplate Style for Single-lever and Amateur Models

Rarer than any of the above is the straight-lever model, on which a single lever comes off the end of the base rather than the side. The base on this key looks essentially the same as the thicker base version for the single-lever model. Many of the components are also the same, just positioned differently. The new nameplate is also used on this key, and is attached directly to the top of the base. It appears that this key never had a cover. One of these has been on display at the Ford Museum in Dearborn, Michigan.

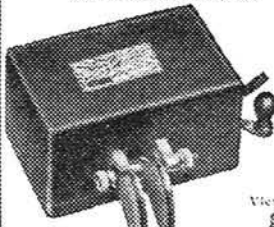


Drawing from L. C. McIntosh patent

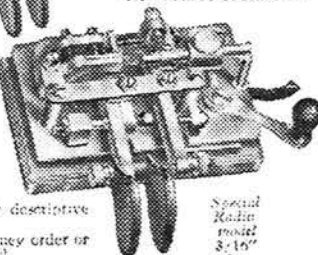
The Ultimate Transmitter

It will get you through like hand sending. Under cover that locks in place only need be removed to adjust speed or clean points. Beautiful black crossed enamel finish 2 1/2 x 4 1/2 x 2 1/2" high, weighs three pounds.

View with cover in place



View with cover removed



Four instruments in one, double or single lever, right or left hand. Four vacuum feet. When you order state if for left hand use.

Send for our descriptive circular. Remit by money order or registered mail. Do not strain your nerves with an old worn out bug.

All parts die cast and interchangeable. Fingerpaddles are adjustable and have milled surface. Prevents sticking to fingers. Relay and return spring control model 15 contacts welded in place.

\$12.50

Special Radio model 3-16" dot contacts \$15.00

L. C. McIntosh, Special Sales Agent
4163 Buflong Ave., Los Angeles, Cal.

July, 1929 QST

A patent for a "Semiautomatic Telegraph Transmitter" was issued to Louis C. McIntosh of Los Angeles, California on Jun 23, 1925 (number 1,543,609). The patent was filed May 31, 1921. As stated in the patent, one of the objects of the invention is to "...provide an autotote telegraph transmitter which may be readily converted from a double key to single key instrument." "Another object is to provide a transmitter than may be readily adapted to right hand or left hand use." Looking at the key, it is not clear just how this could be quickly done. The patent explains that this may be accomplished by inverting the instrument! "Another object is to provide a telegraphic transmitter of portable character and at the same time that will remain stable when placed on the operator's table or bench." McIntosh considered the right-angle design superior for stability as the longer dimension of the base is in-line with the direction of lever movement. It was also an object "to provide an instrument that can be locked against variations of adjustment without authority."

It has proven very difficult to find written information on Ultimate Transmitter Co. and its keys. I have found ads in 1929 and 1930 issues of QST magazine, describing what I have called the amateur model. The earlier ads say that the key can be ordered for left hand use. These ads also list L.C. McIntosh as the

"Special Sales Agent" with a Los Angeles address. The later ads list Ora F. Martin as Radio Representative and gives a Baldwin Park, California address. I have never seen any catalog that included Ultimate Transmitter keys and have been unable to find ads for any of the models besides the amateur. It is unclear how the other models were marketed. The evidence implies that many, if not all, Ultimate keys, were sold by direct sales.

Ultimate used high serial numbers on their keys for which there doesn't appear to be any logical explanation, other than they wanted people to believe that this was a much more popular key than was actually the case. I have obtained the serial numbers of Ultimate Transmitter keys in various collections with the following results: original models are known with serial numbers in the 12500's, 12800's, and 12,900's; the single-lever model with serial numbers in the 15,700's, 15800's, and 15,900's; and the amateur model with serial numbers in the 15,500's. However, there are likely serial numbers outside the above ranges.

Melvin E. Hanson

He called his keys "The Melehan Valiant." The nameplate indicates that the key was made by "Melvin E. Hanson" in Huntington Beach, California. "Melehan" is a contraction of this maker's name.

The Ultimate Transmitter

The Best Radio Bug on the Market!

Order one of these modern instruments; increase your speed and improve your sending.



The man at the distant end will be as pleased as you will be when he comes your improved transmission.

Send for descriptive circular.

\$12.75

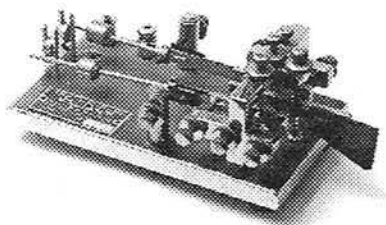
Remit by P.O.M.O.

ORA F. MARTIN, Radio Representative
680 N. Breahe St., Route 1
BALDWIN PARK, CALIF.

October, 1930 QST

These keys have the distinction of being the only known mechanical ones to make auto dashes as well as dots. Thus, some have considered this key to be fully automatic, while others have stated that this is really a dual semi-automatic. On the earlier keys, including the one in the photo, there are two sets of pivot bearings for the central lever (this can be recognized by the four adjusting screws

on top, rather than three). This gave the user another way to change the feel of the key. In addition Hanson designed a dot contact spring assembly with two contacts; this provided a



Melehan Valiant - Auto Dots and Dashes



Nameplate for Melehan Valiant

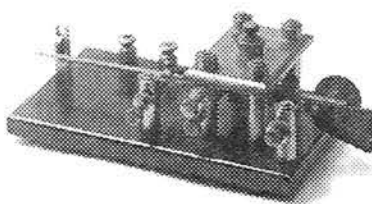
way to make a step change in dot speed. With a 4" x 7" base, this is one of the larger semi-automatic keys. Keys were produced with both chrome and black crackle bases. There is also one that has a green marble base - likely a special order. A very fine article with much original research is: "Mel Hanson's Keys", by Randy Cole.

The March 1942 issue of QST had a half-page article titled "Another New Mechanical Key"; which showed a picture and gave a few particulars on the Melehan Valiant. The article stated: "...the 'Valiant' key which Melvin E. Hanson, W6MFY, has placed in limited commercial production." Patent number 2,329,531 was issued to M.E. Hanson on Sept 14, 1943 (it was filed May 5, 1942).

Statistical analysis on the serial numbers of Melehans in various museum and private collections provides an estimate that about 150 or 250 (depending upon the assumptions) were made with the Huntington Beach address. The early serial numbers were scratched into the nameplate. The serial numbers usually start with either "ST" or "DL", followed by a number where the first digit is either a "5" or "6." It is theorized that this number corresponds to the year of manufacture - 1945 or 1946. All the known Melehans have a "5" or "6" in the first digit. There is some evidence that a few keys were produced earlier, but it is

unknown how they were serialized. Possibly the "limited commercial production" before the end of WWII was so limited that none of the pre-1945 keys have surfaced. These keys were not heavily advertised - the only known ads showing the Huntington Beach address were in the 1946 Radio News (February, April, and June).

There is some indication that Hanson (or possibly Schultz) also made a semi-automatic key that provides automatic dots, but not dashes. I read in Randy Cole's article about a collector who had an unmarked semi-automatic bug that shared some unique design details with the Melehan and was thought to be a Melehan - I was skeptical. A little later I realized that I also had a semi-automatic key with some design elements that matches those on the Melehan Valiants. This is an unmarked key I bought in 1983 from Paul Giganti at a CHRS swap meet; always thinking it to be nothing more than a very fine example of a homemade bug. Comparing it the Melehan Valiant, it has the same oversize adjusting screws and nuts with the same knurling, the base is the same size, the damper design matches, and the posts have the same 3-steps at the top. This is rather weak evidence since some ham with a metal lathe may have simply



Possible Melehan - Auto Dots Only

copied many of the design details from a Valiant. However, upon close inspection, there is one strong piece of evidence that this key was made in the same place as the Melehan Valiants - my unmarked key has the same unique dot contact assembly with two contacts - it precisely matches the one on my Melehan Valiant. So why no nameplate or even holes for one? My speculation is that these were special order keys, and he did not want to use the Melehan Valiant label because that was reserved for the dual semi-automatic keys. It is even possible that these dot only semi-

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VALIANT

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MELEHAN VALIANT

- Automatic dots plus automatic dashes.
- Adjustable from fifteen to eighty words per minute.
- Massive base 4 x 1/2 x 7 inches and cradle unit provide solid foundation.
- Purely mechanical in operation, self-contained and self-sufficient, no electrical forces being utilized.

Deliveries of this superior instrument have been interrupted because the manufacturer would not substitute inferior materials or in any way change the perfected design.

MELEHAN RADIO PRODUCTS CO.
7061 E. Monroe St., Rt. No. 1 Anaheim, California

June, 1948 QST

automatic Melehans predate the Melehan Valiant. This semi-automatic key has a black enamel base with lacquered brass parts.

Schultz Tool & Machine Mfg. Co.

The nameplate on these keys calls it the "Melehan Valiant Automatic." The keys made under this label are essentially the same as those made under the Melvin E. Hanson label. This nameplate indicates that the key was distributed by Melehan Radio Products Co. of Anaheim and manufactured by Schultz Tool & Machine Mfg. Co. of Anaheim. The connection between Melvin Hanson and Schultz is unknown. Did Hanson sell his design and manufacturing rights to Schultz? I have listed Schultz as a separate manufacturer, since that is what the label indicates.

The serial numbers on these start with "A-10" followed by 2 more digits. Ads listing Melehan Radio Products Co. and an Anaheim address ran in June and August, 1948 issues of QST, but apparently no other time. Statistical analysis on the serial numbers provides an estimate that about 50 keys were made with the Anaheim address.

Displaying Radio Tubes

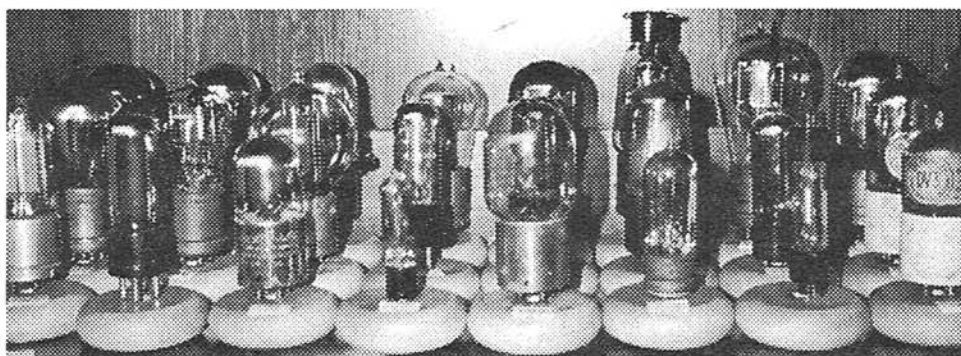
Dale Sanford

Correspondence Invited
4025 Slate Ct.
Santa Rosa, CA 95405
e-mail: larryn@sonic.net

REFERENCES

- The Bug Checklist*, Edited by Doug Seneker, NOWAN, first edition August, 1995
- Ultimate Transmitter Co. instruction manual*, believed to be the manual for the amateur model. It shows the "Correct Procedure for Adjusting the Improved Ultimate Transmitter." My copy is courtesy of David Pennes, WA3LKN
- Mel Hanson's Keys*, Randy Cole, KN6W, The Vail Correspondent, April, 1995
- Another New Mechanical Key*, QST, March 1942, my copy from Lynn Burlingame's N7CFO Keyletter #5, February, 1993
- How to Estimate Production Quantities*, Randy Cole, KN6W, The Vail Correspondent, April, 1995.

Thanks Larry for sharing your insights into this vibrant area of communications history.



I like to collect early tubes for display. I also like to display the tubes standing up as they would in a piece of equipment. I first tried using tube sockets but many types of sockets are hard to find and do not have a uniform look. I next tried the holders that are commercially available from antique radio parts suppliers but many tube types do not fit. A drawback of both of these systems is that I could not see the tube pins and I feel the the pins are an important characteristic of each tube type. The solution was found at an arts and crafts store where they sold small two and one half inch wooden wheels to make wooden toys.

- Step 1: Give each wheel a coat of clear finish. (I used tung oil)
- Step 2: With a fine tooth file or sandpaper finish the prong ends so the tube will stand up straight.
- Step 3: Mix a small puddle of 5-minute epoxy cement about the size of a quarter.
- Step 4: Dip the prong ends of the tube in the cement and stand the tube on the wheel and let it set a few minutes. That's it.

I also like to put a small sticker Label on the wheel telling the type, etc. The tube can be released any time with a razor blade.

Neat trick— they look good enough to eat!

BIG TONE

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Tube Collectors Association Formed

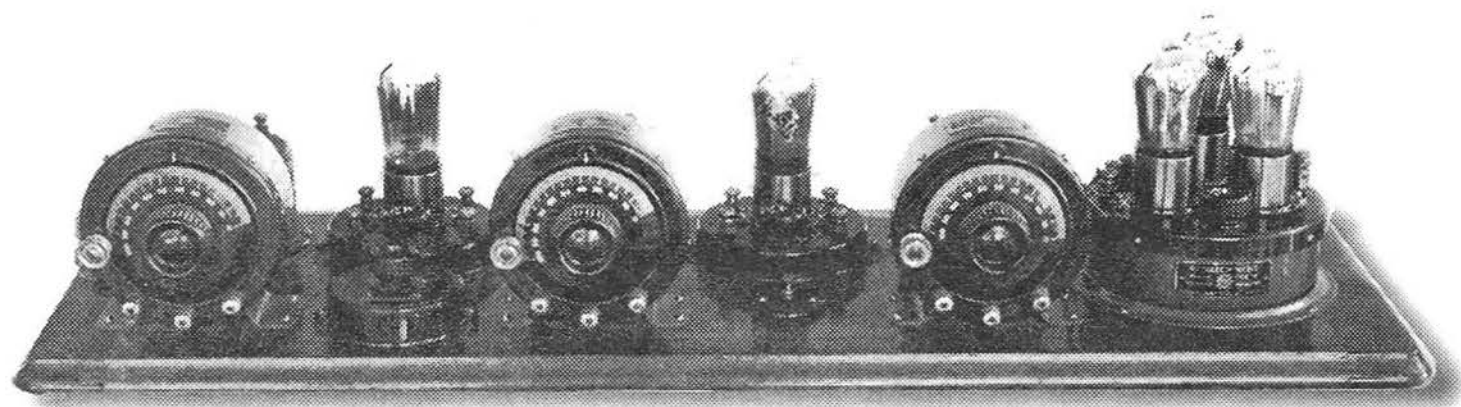
This new group is now in operation. Started by dedicated collector-historians, it is international in scope, nonprofit, and non-commercial. It addresses vacuum tubes of all vintages and types. For a membership application and sample copy of *Tube Collector*, please contact the club at PO Box 1181, Medford, OR 97501. Details are also available from Al Jones, WIITX, at (707) 464-6470 or Ludwell Sibley at (541) 855-5207.



"I have to use their alkalizing tablets, their commercials upset my stomach."

Atwater Kent Model 10 "Radiodyne"

Bart Lee



This Atwater Kent breadboard radio comes out of my personal collection—It is one of two AK breadboards that the late Paul Giganti thought I should have. The other is also a Model 10 (a 4550) and while it is an exceptionally nice example of that radio, the pictured radio is very special. This Model 10 was Atwater Kent's first big radio, specified on September 7, 1923 as the Model 10 (4340) "Radiodyne." (The suffix "dyne" comes from an ancient Greek word meaning "power." It was a popular usage in early 20th Century technology; e.g. "heterodyne" and "dynamic.") Atwater Kent chose this rubric for its new breadboard-style radio in 1923, and put the term on the radio frequency transformers, on their individual nameplates on their tops. This three coil and five vacuum tube set sold for \$100. It was advertised with a drawing, noting the 4340 as Grey, and for an additional \$4, the model number 4600 could

be had in brown. (My set is more green than grey, and Ralph Williams has a green one also). The company described the Radiodyne thus: "The Atwater Kent 'Model 10' set is the De Luxe outfit with the maximum selectivity, tone quality and Volume. It includes two stages of tuned radio frequency amplification, detector and 2 stages of audio frequency amplification. The instruments included are 3 Variable Condensers, 3 Radiodyne Transformers, 2 Tube Units, Potentiometer and Detector, 2 Stage Amplifier. This 'Radiodyne' cuts out local interference and is easily operated."

The AK company was still selling this set as the Radiodyne as it developed and sold the Model 9 and the Model 5. Altogether, some 12,270 Model 10s were sold in 1923. Few, however, were actually "Radiodyne" and thereby hangs the tale. Another company, by exactly one day sooner, had registered

"Radiodyne" as its trademark in earlier use. Racine, Wisconsin's Western Coil Company beat Mr. Kent to the punch.

AK had to retreat, and abandoned the mark. The Model 10 thus sailed into radio history, as the flagship of the breadboard fleet, but not as the Radiodyne. There are very few of these Model 10 Radiodynes extant.

All of the above information about the Model 10 Radiodyne comes from Alan Douglas, in *RADIO MANUFACTURERS OF THE 1920'S* (Vestal, 1988; vol. I at pp 65 ff) and materials he supplies. It is also interesting to note that the breadboard style was adopted by AK as a marketing ploy, in that it made the radios look like fancy scientific apparatus. Other manufacturers (e.g., Federal and Westinghouse) used other styles. The AK breadboard was, however, so unique and so successful that it defined the style of a technological era: early broadcast radio.

— 73 Bart Lee.



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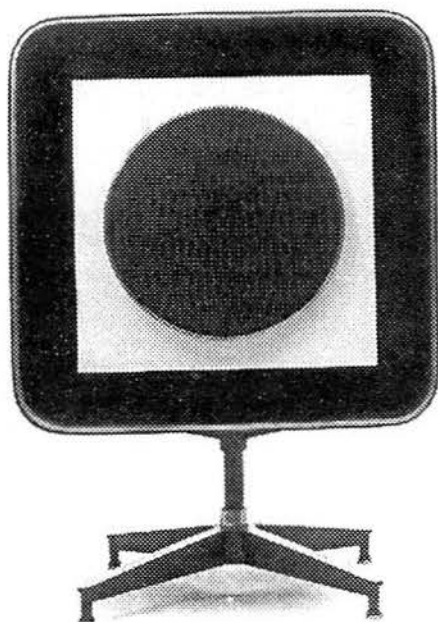
Name

Address

Serviceman? ☐ Dealer? ☐ Experimenter? ☐

Post-War Wooden Radio Cabinets — The Plainer the Better, Ugly is OK

Steven Cabella of The Modern i 1950's Shop.



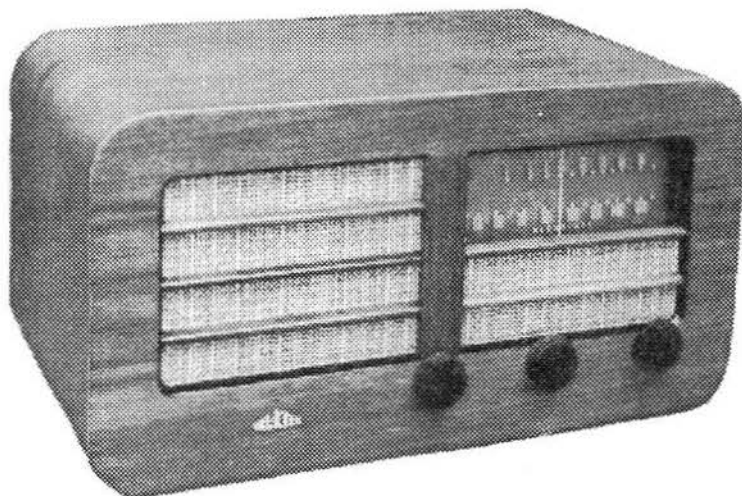
What got me started on radio collecting was the estate of a local radio engineer who worked from the 1930's through the late 1960s. You see, I buy the estates of creative people, and try to recycle their creative lives. I buy furniture, artwork, books, magazines, catalogs, files, and radios. These I buy from people who designed, made, or created things for a living. This includes artists, architects, designers, ad men, art teachers, machinists, builders and engineers; you know, any sort of creative type. Radio people are creative people too, always have been, whether it was Lee DeForest, who invented electronic communications equipment, or Mr. Watterson of the Watterson Radio Company who came up with simple, plainer looking wooden radios because he disliked plastic. To make it, you have to create it, hence, creativity by design.

I entered into this radio hobby a little late to be collecting the classics such as Art Deco sets, mirrored sets, Catalins and the wild looking Fifties plastic sets. Frankly, those radios are above my budget and I think the fun is gone once they become that expensively collectible—that is, unless you find a real gem for next to nothing, then it's a thrill. In the beginning I just picked up some of the uglier 1940's and 50's wooden radio left-overs at the radio swaps to have something to fill the shelves at my store, The Modern i 1950's Shop. After I had accumulated a number of these odd cheaply made wooden radios, my radio friends began to call me "The Plywood Radioman." They chuckle at me because I go after the simplest, ugliest, plainest made wooden radios, things they love to get rid of,

with little resale value, sort of the stylistic equivalent of the plain and simple looking plastic radios from the late Fifties and early Sixties. If I collected the metal equivalent of these you'd call them "boat anchors", but since they're wood, my fellow radio pals jokingly tell me I'm "collecting firewood."

But I like them. These are simple wooden radios that often had to be clever in their cabinet design to make up for the fact the materials used in construction were inexpensive, i.e. Cheap. Unfortunately, they had their problems. Due to excessive tube heat from the 5 to 7 tube chassis, the plywood cases were often prone to warping or falling apart. Small independent radio manufacturers built thin plywood and glue cases as an inexpensive alternative to the older solid wood cabinets. But the days of the wooden case were numbered, and eventually these same little companies had to abandon their wood designs in favor of the newer plastic cases or go out of business.

Some of the wood cabinet makers who hung on to their manufacturing plants during the lean fifties got the job of making plainer looking copies of the popular modern-styled European radio cabinets of the early sixties. Other companies like the Watterson Radio Company from Texas closed their doors, in part, because of the owner's dislike of plastic. Since most independent radio manufacturers jobbed out their cabinet manufacturing, as did several of the major companies until they could get their own post-war production lines up and running, there were a large number of manufacturers who made the cases for the



numerous radio companies. Several wood radio enclosure manufacturers, including the Evans Company in Michigan (makers of some Tele-Tone, Federal designs), and the major producer, the RMS Radio and Phono Cabinet Company of New York, were among the manufacturers who produced cabinets during the late forties, fifties and early sixties.

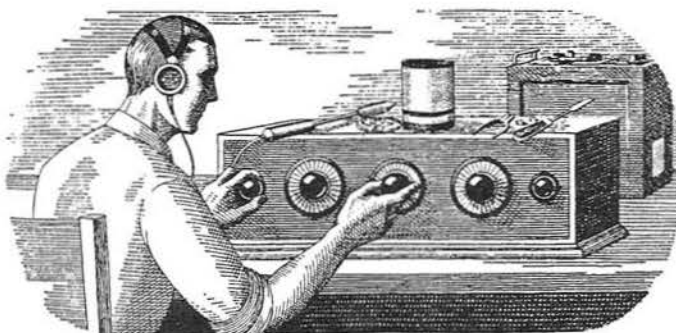
The radios and speakers that I've recently loaned to the radio display at the San Francisco Airport (currently on view), represent several attempts by companies and designers to provide a nice looking cabinet at a low manufacturing cost. The budget saving designs are obvious upon closer inspection. The Watterson set from 1946 has the speaker on the underside of the radio, forcing the sound to bounce from underneath the cabinet. No grill or grill cloth to worry about coming up with a design for, because it was intended to be out of sight. The Tele-Tone, also from 1946, is made with a speaker cloth that is actually a single thin ply of veneer sheeting punched with hundreds of small holes for the sound to pass through. Tele-Tone experimented with several configurations of this radio finally before dropping this design in the early fifties. The Emerson Radio and Phonograph Company tried using the same plywood speaker grill before introducing a better one made from a sheet of fiberglass punched full of hundreds of tiny holes. One does have to wonder about the sound qualities of these strange choices for speaker cloth material.

One of my favorite designs is the "Tru-Sonic" wooden speaker enclosure manufactured in 1956 by the Stephens Speaker Company of California. Its plywood cabinet had a Formica front with a speaker screen made from strong nylon webbing, strong enough to keep a wandering object out, yet open enough to permit sound to escape. The speaker's simplified shape appears to have been borrowed directly from a 1948 design for a molded plywood television cabinet. These large wooden speaker boxes, designed by Don Albinson, were said to be top of the line acoustically. These speaker units have other interesting budget minded construction ideas. One of the first companies to offer an optional swivel base designed to direct sound, its guaranteed vibration free cabinet construction was packed with a high tech material: shredded cardboard. It is interesting to note

that the Stephens speakers themselves were constructed using an inexpensive metal pie tin as the speaker cone.

To me these are good examples proving that budget and quality can go hand in hand in a plywood radio cabinet design. Paling by comparison to their more expensive counterparts, these sets are akin to the abundant and cheaply made plastic table top radios of the late fifties and early sixties. Like their wooden predecessors these commonplace plastic radios were never intended for an upscale market, and their shortcut construction and unassuming designs make them less appealing to modern collectors than those with fancier cabinets. However, these sorts of simple products have their own little niche in the American Dream; they were functional designs for the low end of the market, providing the average guy with an affordable box to tune in on.

This area of radio history is little thought about, though it is a cornerstone of the radio industry. I'm doing continued research on the history of the manufacture of wooden radio enclosures after 1945. I am interested in all information about manufacturers, suppliers and distributors. I am also collecting any information on the process of manufacturing including woods, glues fabrication techniques and design and would really appreciate any help from any of the collectors or clubs out there. Please feel free to send copies of ads, articles or photos relating to this aspect of radio. If you want to chat about post-war wooden radios and the manufacturers of radio cabinets, or have any information you'd like to share, please contact me at The Modern i 1950's Shop, phone (415) 456-3960, e-mail radios@modern-i.com, and please visit my radio web site, The Modern Radio Shop, through its link at www.modern-i.com



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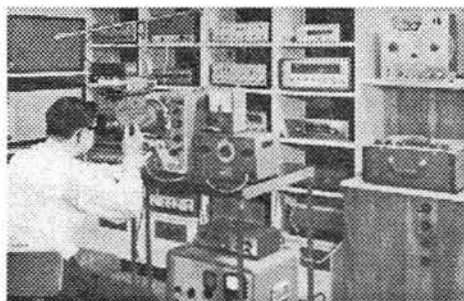
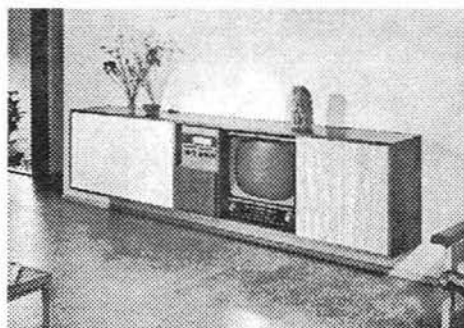
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Vacuum Tube Valley — A journal dedicated to tube electronics

Reviewed by S. Sutley



Switch on, power up, and pause expectantly for the hum and glow of your trusty tube amplifier. In a digital world with speed and obsolescence blurring our choices, it is comforting to know that tube gear still occupies the high end of the hi-fi market. The best vintage tube amps, tuners, and speakers were incredible performers for their time and in ours. Even more, tube hi-fi systems offer a warm, soothing sound that our memories welcome (even forgive) like an old friend. Living with vintage audio gear has its special rewards and endless seductions with most of us pulled into the deep end of the hobby before we know it. Radio collectors understand the descent into our avocation; we go eagerly and take others with us (wives, friends, whole families). Putting a tube hi-fi system together, maintaining, and optimizing each part—especially the user—is the challenge at hand.

Enter *Vacuum Tube Valley*, a journal published and nurtured since 1995 by long time CHRS member Charles Kittleson. *VTV*, now in its tenth issue, is basically a dream guidebook to tube audio. The journals map out the tube scene for us with often brilliant and original insights into vintage and cutting edge audio gear. The contributors to *VTV* are a team of Mr. Peabodys blending engineering jargon and technical expertise with understandable aesthetic readings into the performance side of tube audio. The sound qualities of hi-fi systems are discussed in human terms with words like fullness, transparency, and musicality (analogue language) instead of machine talk. Readers of *VTV* get the benefit of world class ears and hard won opinions on a range of topics that aren't tainted by marketing obligations. We all have our preferences, and sure, there are ties to industry, but the mix of writers and their backgrounds allow us to find our own tastes in tube audio.

VTV focuses on hi-fi and tube performance, but includes guitar amps, theater sound systems, manufacturing history, radios, restorations, bench set ups, evaluations, and the current marketplace. The articles are clear, easy to read, and the products of long experience and solid research. The equipment shootouts and evaluations of tube performance are generously detailed and full of invaluable advice for putting a system together and fine tuning what you have. High-end hi-fis and amps are the mainstay of *VTV* since that is the

future of tube audio, but there is also good coverage of mid-range equipment and re-engineering tips to upgrade your system. Hi-fi kits and projects are reviewed for builders and, lucky for us, historic background for preservers and collectors of vintage audio. There are even articles on vacuum tube computers. I enjoy reading about and looking at audio hardware, and I especially like the interviews and biographies of audio pioneers. Of note too are the current prices for tube audio and the hungry foreign market for American classics. I'm starting to get a little more alert when I walk by a hi-fi or box of tubes at a flea market or garage sale.

The depth and variety of information published in *VTV* is only possible by bringing together expert audiophiles into a community willing to share their knowledge. *VTV* has settled into their niche and developed into a beautifully produced journal with an international following, complementing other publications like *Glass Audio*. As a commercial venture, advertising creeps into the issues but it is related and may be useful—plus they keep it in the back. As a hi-fi amateur, almost every article is of interest to me. Some of the reviews and evaluations are well beyond my reach and too specific to be immediately useful, but this journal must be an alternate heaven for advanced audiophiles using tube audio. It's a classy journal, compact, and has lots of photos and graphics.

VTV embraces the historic purist seeking to restore and preserve vintage audio as it does the re-engineered side of audio performance. I've been limping along with a Fisher 500C receiver for the living room and a Dynaco SCA-35 for my work space. I perked up when I read about both them in *VTV*, steps to revive them, and reassurance that they are solid units for the mainstream. Meantime, I'll let the contributors narrow my choices on putting a hi-fi system together, fantasize a little, and try to avoid expensive mistakes.

Charlie Kittleson's article on early RCA tube manufacturing history will be in the next issue and we hope to reprint other VTV articles on legendary manufacturers. Norm Braithwaite's VTV article on the Scott Quaranta appears in this issue.

Want Ads

For Sale—Tubes, over 4000 in stock, N.O.S. and tested used. Kelly Molles 209-955-6719. molles@jps.net www.angelfire.com/ca2/tubesandradios

Wanted—RCA 9T, 10T, Radiola 26 grille, Philco 70 cathedral cabinet, RCA 186K, Zenith 9S-262, 9S-365. Bob Eslinger 860-928-2628. radiodoc@neca.com

For sale—Novelty radios, original "Blabbermouth" by Nasta and cathedral reproduction (mint in box), both for \$45 OBO. Curt Brohard 510-521-4299.

Wanted—Parts for a Philco Beam of Light record changer, model year 1941-42. I own one model each #42-1009, plays 78s & 33s, T41-609, plays 78s only. Bob Meko, 440-355-5785.

For Sale—Vintage Hi Fi. Restored Dyna. Eico, Scott, Fisher and more. Plus all kinds of audio tubes and hi voltage caps. Charlie Kittleson 650-631-6550

For Sale—My 6 page list is full of radios and "Stan's Stuff." Just ask for it. Will send by Email if desired. Always free advice! Send a SASE to Stan Lopes, 1201-74 Monument Blvd., Concord, CA 94520 or Email for the list to splopes@aol.com.

Wanted—Blue, etched, side mirror for Sparton 558 (4 knob). Chassis for Stewart Warner R469. Abbottwares "Hula Gir" Radio. Steve Kushman 415-821-7671.

For Sale—Philco 38-2670. Works OK. Bob Moore 408-252-5471. mustang@best.com

For Sale—Over 500 Edison Diamond discs and William and Mary player. \$1200 for all of it, or discs at \$3 each, player \$500. Nice original condition. Steve Bohte 707-585-6808.

For Sale—Atwater Kent breadboard radios and parts. Send for my list. Paul Thompson, 315 Larkspur Dr., Santa Maria, CA 93455. 805-934-2778

Wanted—1940 Zenith 1207 chassis and escutcheon, Sparton 109, 110, 111 chassis, Philco Predicta antenna, AK 84 cathedral cabinet, Eico HF 89 schematic, information on electro magnetic Lumiere pleated diaphragm speaker and ex-Graybar employee/radio collector named Orville Johnson, who lived in San Francisco. Chris Galantine 530-244-2337.

Wanted—WW II military Television. US Army/ Navy glide bomber cameras, receivers, monitors, transmitters, dynamotors, manuals. #s SCR, ATJ, ATK, ARJ, AXT, CRV, CEK. Phone or fax Maurice Schechter 516-294-4416.

Wanted—Novelty vacuum tube sets and catalin radios, basket case cathedrals or other unusual wood table models. Jack Gray, 707-226-2550 or at trustmej@aol.com

Wanted—Wings radio and Sparton dial glass #C3011, for Trioletan mod. 1867. Frank Moore 406-259-7250.

Wanted—1930's to 1940's radios to buy and restore for my personal collection. Un-restored radios only. Call Andy 916-645-7001.

Wanted—Hallicrafters HT30. Looks more important than operational. John Gibson 510-849-1051. gibson@smoot1.lbl.gov

Wanted—Any information about radio operations at the Presidio, 1901-1991. Bart Lee 415-956-5959

For Sale—Tube Lore, 186 page reference book gives an insightful scoop on about every North American tube. Reviewed by Eric Barbour in Vacuum Tube Valley as "an instant classic". Ludwell Sibley, 102 McDonogh Road, Gold Hill, OR 9725-9626 for \$19.95 postpaid in the US and Canada. \$24.95 for air overseas.

For Sale -Ham Station. Drake R4A receiver, MS4 speaker, T4X transmitter. Heath SB200 linear amp, SB610 spectrum analyzer. Shure #444 mic. \$250 all. Collins R-390 VRR receiver \$75. Arthur Adams 650-321-4886.

Wanted—Zenith printed material prior to 1940: advertisements, brochures, matchbooks, etc. T.S. Melvin 610-494-8000 x200.

Wanted—Junction box for RU-16/GF-11 early WWII command set. Black tag preferred, blue tag OK. John (Jay) Coward 831-336-3414

For Sale—Edison console radio, unrestored \$1,000. Swiss made wind up phonograph in camera case, \$1,500. Many old tubes, radios, 3" Pilot TV with magnifier, \$450. Looking for kit assembly instructions for Globe "Chief" transmitter. Guiseppe Bennett 510-534-9576.

Wanted—Still need antenna for Radiola Super VIII console, or details to construct one...pictures, dimensions, etc. Mark S. Rauber 775-782-3596.

Wanted—Predicta TVs and unusual portables, plastic JVC Videospheres and Pyramids. Sheldon 415-454-8851.

Wanted—Early or unusual telegraph keys, sounders, relays, etc. Larry Nutting 707-539-1883. larryn@sonic.net

For Sale—Heathkit VF1 VFD, \$20 H. Meyer 650-349-2071.

For Sale—NRI Model 70 professional tube tester in oak cabinet VG \$40. B&K color bar generator with manual \$25. Ken Miller 412-242-4701.

Wanted—C-1218/GR control box for AN/GRC-38 radio set (BC-610). Any information on the history, use and manufacture of the Hallicrafters HT-4 and BC-610 transmitter. Mikhael Brown 408-578-1076. mikhael_brown@hp.com

Wanted—Back cover, chassis shielding (2 pieces), and special power cord plug (chassis), for Edison C-2 radio phono. Schematic for Tandberg cassette deck model TCD-330. Also want a Brush Soundmirror tape recorder, model BK-401, which used paper tape. Fred Deal, 916-428-4842.

For Sale—3 boxes of Sams. Approx. 150 folders \$30 for all. Will Mathis 408-226-0181. will4bird@aol.com

Wanted—The complete horn speaker for a Radiola "Grand." Everything including the driver out to the grill or parts. Darrell Combs 916-969-0635.

Wanted—Radiola 62 console, complete. Philco 42-360 chassis. Philco model 18, 10" speaker. RCA 27K chassis. Richard Lane 209-634-2442.

Wanted—Old electrical meters before 1900, as is, your price. Leonard Cartwright 408-739-6025.

Wanted—Transistor radios and pocket reel to reel recorders. Guy Doss 408-241-2437.

Wanted—Mags, trade books, graphics, industrial design and radio related paper from 1920s-60s. Buying colorful plastic radios of all sizes, unusual Deco items, and small TVs—especially space age. Stephen 650 359-7787 radiome@mindspring.com

Dimension X

Don Monjure

Welcome to Dimension X, a world accessed only through that magic box that sits silently in your living room giving off an amber glow. It is September 29, 1950 8:00 pm and Dimension X is doing a radio play based on Ray Bradbury's *Martian Chronicles*—"And the Moon be Still As Bright." Our imagination (the best special effects creator in the universe) is guided by the deep serious voice of the narrator, the superb sound effects and the moody "Martian" music.

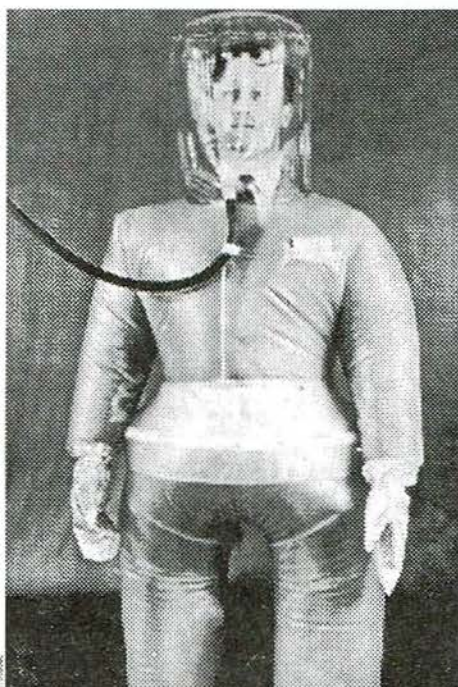
Sit quietly and feel the cool Martian Night and listen to the dark Martian Wind. The story is one of the first "environmental" plays on radio. It's about Spender, an archeologist on a Martian expedition who falls in love with the pure and mysterious beauty of Mars. He is appalled to find that all the Martians are dead, killed by chicken pox brought from Earth on an earlier expedition. The other crew members prove to be careless and irresponsible in their treatment of the fragile planet Mars. Spender kills two of them because he has declared himself the last Martian and seeks revenge. Needless to say the Captain has to kill Spender even though he doesn't want to.

This radio play is a very well written, produced and acted. It captures the immense mystery and fragile fear that hangs in the Martian night. With its tragic and touching ending one understands the need to be kind to the world around us.

*For we'll go no more a roving into
the fair night
though the heart be still as loving
and the moon be still as bright.*

Dimension X was one of the best sci-fi shows that provided "adventures of the mind" written in FUTURE TENSE. So, if you want to have the "RADIO" experience (and only a madman wouldn't) I suggest you acquire this tape from Radio Showcase located in the East Bay.

Ed.—Gadzooks Don, are you sure Spender gets it?



Internet Resources

Norman Leal

There are great resources on the Internet for the antique radio collector:

Antiqueradios.com has a list of the Antique Radio Clubs throughout the world and links to many of these clubs. Hundreds of links to resources are available where you can obtain parts, services and radios. There are great forums where you can ask questions about antique radios or help to answer others questions. This site has been set up by Alan Voorhees, CHRS Website Chairman.

Another great site is *Nostalgiaair.org*. Here you will find radio schematics, color codes and other component information along with links to other antique radio sites throughout the world. Forums are also available to ask and answer questions. Richard Lancaster from Space Coast, Florida has set up this site.

Atwater Kent, Crosley and others have their own websites where you can see pictures of the radios and read about the history of the companies.

All this information is available on the internet, without charge.

Norman Leal Livermore, CA.

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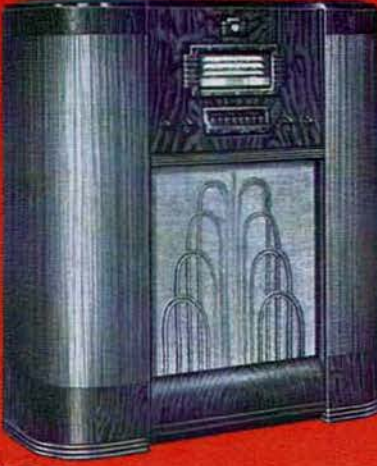
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